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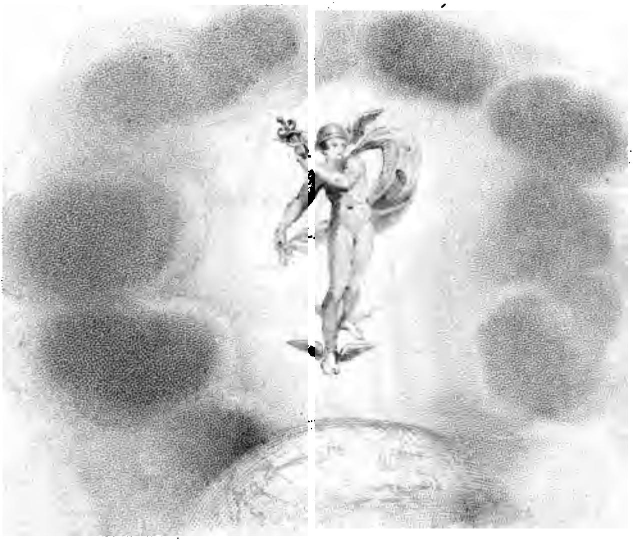

THE LONDON
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FOR THE YEAR 1827.

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in the various branches of

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THE

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ALSO,

Original Communications

ON SUBJECTS CONNECTED WITH

SCIENCE AND PHILOSOPHY;

PARTICULARLY SUCH AS EMBRACE THE MOST RECENT

INVENTIONS AND DISCOVERIES

IN

PRACTICAL MECHANICS.

BY W. NEWTON.

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ADVERTISEMENT.

The London Journal of Arts and Sciences has now reached the close of its Fourteenth Volume, having in the progress of Publication duly performed the promise with which it was first presented to the world, (viz.) the accomplishment of the arduous task of reporting Every New Patent Invention, the principles and properties of which have been faithfully detailed, with such occasional remarks and references to previous Patents, as a candid consideration of the subjects called forth.

On comparing the List of New Sealed Patents with the Reports of their specifications given in this Journal, it will be found that a few remain unnoticed, not having been Inrolled agreeably to the conditions on which they were granted : consequently, those Patents have become forfeited. But the specification of every Patent that has been Inrolled, will be found fully described in the Pages of the Journal, the Reports of which are completed in the present Volume, up to the beginning of the year 1827.

Notices of forthcoming Inventions, and the progress of those which have been recently introduced to the world, have formed no inconsiderable feature of the Journal ; but the superior claims of Patent Inventions, and the great increase in their number of late years, have, in some measure, precluded the insertion of Original Communications connected with the Arts; and considerably curtailed the Polytechnic Department, which, as a Vehicle of Scientific News, is much to be regretted.

The Editor of the LONDON JOURNAL of ARTS, in returning his acknowledgments for the very flattering approbation which his labours, in the compilation of the preceding Volumes have received, begs to announce that arrangements are now made, by which it is hoped the Work will in future, be still more deserving of Public Patronage, and without deviating from the Original Plan of Reporting every NEW PATENT, a wide field of Science will be opened by the additional aid of a Gentleman, whose Literary and Scientific labours are already known to the world.

It is therefore thought to be desirable, that the present Fourteenth Volume should complete the FIRST SERIES of the LONDON JOURNAL OF ARTS, and that the next Number should commence a NEW SERIES of the same Work, under the joint superintendence of Mr. W. NEWTON, of the Patent Office, and Mr. C. F. PARTINGTON, of the London Institution.

London, January, 1828.

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Vol. XIV.

Oldhams Propelling Machinery.

PLATE 1.

Fig. 1.

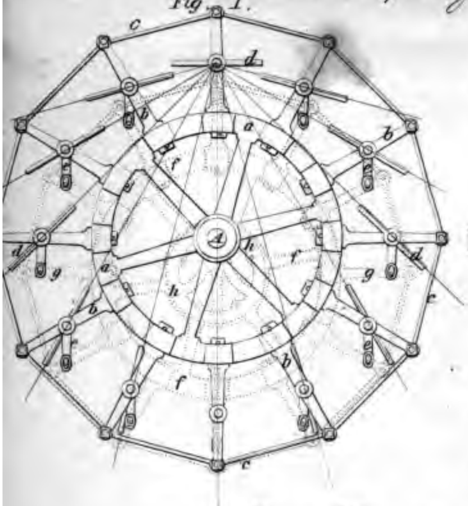
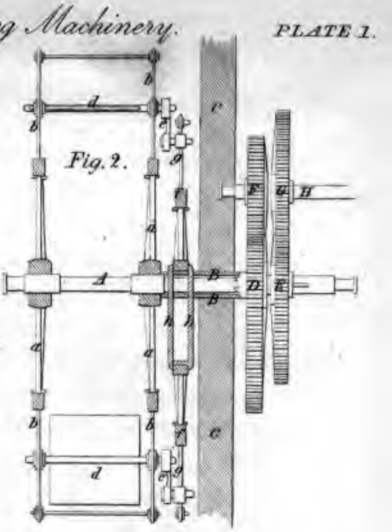
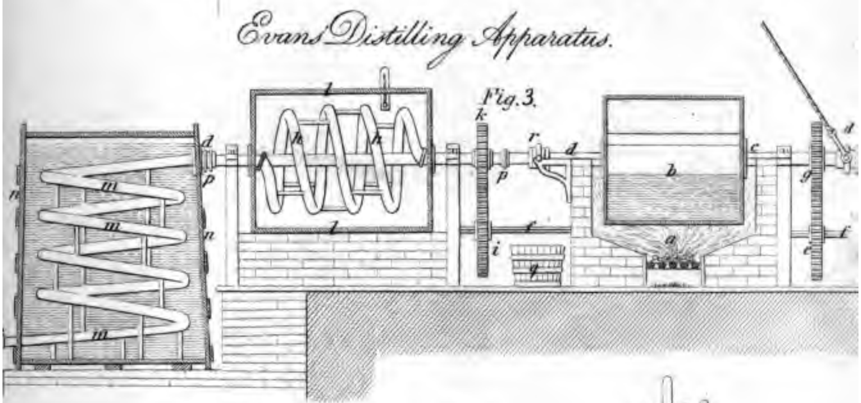


Fig. 2.



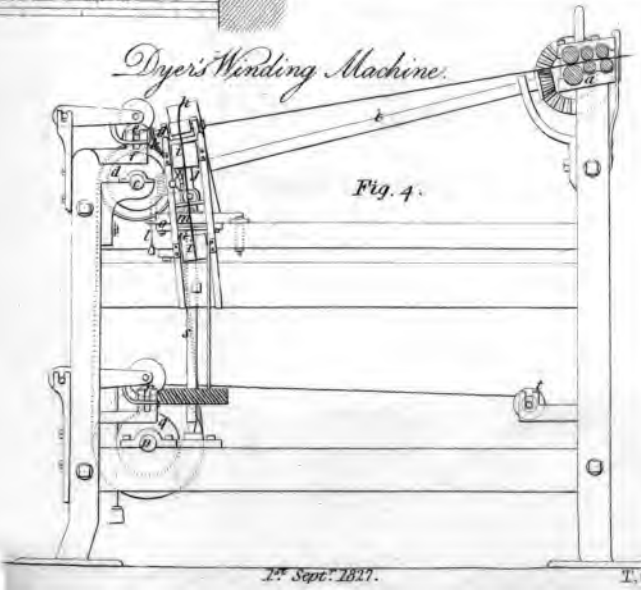
Evans Distilling Apparatus.

Fig. 3.



Dyer's Winding Machine.

Fig. 4.



1st Septr. 1827.

T. Owen sculpt.

THE

London

JOURNAL OF ARTS AND SCIENCES.

No. LXXXIII.

Recent Patents.

To John Oldham, *of the Bank of Ireland, in the City of Dublin, Gentleman, for his having Invented certain Improvements in the Combination of Wheels designed for Driving Machinery, which are to be Impelled by Water or by Wind, and which said Improvements are also applicable to propelling Boats, and other Vessels.*

[Sealed 1st February, 1827.]

This invention is a peculiar arrangement of toothed-wheels gearing into each other, for the purpose of driving or being driven by water-wheels, the float boards or paddles of which, revolve upon their own individual axles by the intervention of an excentric wheel connected thereto. The patentee says, these improvements are particularly applicable to the propelling of boats and other vessels on water, and are to be considered as additions to and variations of the principles set forth in the Specification of a former patent for rotatory paddles granted to him 15th January, 1820, for a description of which see our Journal, Vol. I, page 252.

" The present improvement consists in a new arrangement of machinery, by which the wheels as they revolve upon their common or main axles, cause the paddles or float boards to turn vertically upon their respective axles, placed parallel to each other, and to the main axle." The mode of applying this invention to paddle-wheels designed for propelling vessels, is shewn in Plate I, at figs. 1 and 2.

These paddles or float boards are constructed in such a manner, that if lines were drawn radiating from the point or top of the vertical diameter line of the wheel, that is, from the axis of the upper paddle, through the centres of all the other paddle axles, these lines would all be in coincidence with the planes of the float boards or paddles. These positions or directions tending to the upper point, or top of the vertical line, the paddles or float boards invariably assume as the wheel goes round, whether turning to the right or left, and the intention of which is, that the paddles or float boards shall always be in a vertical position or nearly so, in and near the lower part of the wheels revolution, and in a horizontal position at the upper part of its revolution, consequently, whether the float boards or paddles are acted upon by the water or other fluid, for the purpose of moving machinery, as in water-wheels and wind-mills, or the paddles themselves are made to act against the resisting fluid as in propelling vessels, in both cases the positions of the float boards or paddles, at the lower part of the wheels revolution, will be most favourable to receive or communicate the greatest mechanical force.

Fig. 1, is an external view of the wheel with its float-board or paddle attached, and standing in the positions described, their planes tending to a point at the top of the vertical diameter, that is, to the axis of the upper paddle, The rims of the carrier wheel *a, a,* are to be made of cast iron, and the arms or starts *b, b, b,* of wrought iron, inserted and keyed into sockets or mortices in the rims *a, a,* the outer extremities of these arms being braced together by wrought iron tension bars *c, c, c,* in the poligonal form represented, for the purpose of giving strength and protection, and which may be further secured by cross bars or bolts connecting the two sides or rims together. The paddles or float boards *d, d, d,* are mounted upon wrought iron axles, the pivots of which are inserted into sockets or journeys in the arms or starts *b, b,* and are thereby enabled to revolve upon their respective axles. To the end of each of the said axles, a wrought iron crank *e, e, e,* is attached, which cranks are also connected to the arms of a wheel revolving upon an excentric axis, and which is represented in the first figure by dots to prevent confusion; it is immediately behind the wheel *a.* This wheel is marked *f, f, f,* and has arms or starts *g, g, g,* constructed in a similar manner to that already described. The wheel *f,* is made to revolve upon a circular crank *h,* which is mounted upon a socket turning upon the main axle. The distance between the centre of the circular crank and its excentric centre of motion upon the main shaft, must be exactly equal to the length of the paddle cranks *e.* The pins of the cranks *e,* are inserted into sockets in the arms or starts *g,* of the wheel *f,* as shewn by dots in this figure. It will now be seen that if the carrier rims or wheel *a*, and its arms, and the excentrically moving wheel *f*, and its arms be made to revolve with different velocities, that the paddles which are connected to both by the cranks, will necessarily revolve upon their axles.

Fig 2, is a side view of the wheels above described, shewn in vertical section, with two of the paddles attached thereto; A, is the main shaft or axle, to which the rim or wheel *a*, *a*, is keyed on in the ordinary way; B, is a socket turning upon the main axle, on the outer end of which is mounted the circular crank *h*, that carries the excentrically revolving wheel *f*; C, C, may be supposed to represent a section of the side of a vessel through which the main axle A, and the socket B, passes. Upon the inner extremity of the socket B, is affixed the spur wheel D, having 91 teeth. Upon the main axle A, behind the last mentioned wheel, is in like manner affixed to another spur wheel E, having 70 teeth. These two spur wheels take into two other spur wheels F, and G, which are bolted together, and keyed upon an auxillary shaft H, parallel to the main shaft. The wheel F, has 39 teeth, and works into the socket wheel of 91 teeth, and the wheel G, of 60 teeth into the wheel D, with 70 on the main-shaft. By this novel arrangement and disposition of the parts described, an actuating power being applied to either of the shafts A, or H, the required revolving movements of the carrier wheel, and of the paddles upon their respective axles is effected, and may then be applied to the propelling of vessels on or in water, or by applying the mechanical force or power of air or water to the paddles, the actuating of machinery may be effected.

The patentee concludes by saying, " Having described my improved construction of wheels for the purposes above stated, I wish it to be understood, that I do not claim any novelty in the *individual parts* of which this mechanism consists, but *I claim to have invented a new combination of those mechanical parts adapted to effect the revolving motions of the paddles, in the manner and by the means above set forth and explained.* Steam vessels equipped with the ordinary paddle wheels, frequently break loose from their moorings in rapid rivers or tide ways, by the resistance the floats make to the running water, they are immersed in, when the wheels are not in motion; also when accidents occur to the engines, or other parts of the machinery, which render it necessary to impel the vessel by wind, through the agency of masts and sails its course is considerably retarded by the float boards standing perpendicularly in the water, whereas by the use of these improved wheels and their appendages, the floats or paddles may be set so as to present their edges to the water, and this service may readily be accomplished inside the vessel, by disengaging the geering of the auxilary shaft in the usual way, and then reversing the position of the floats, by giving the spur wheels D, D, one quarter of a turn on their sockets, whilst the main shaft A, is kept stationary; and then returning the spur wheels and auxiliary shaft into gear."

[*Inrolled July*, 1827.]

To JOSEPH CHESSEBOROUGH DYER, *of Manchester, in the County of Lancaster, Merchant, in consequence of a Communication made to him by a certain Foreigner residing abroad, for a certain Invention of a Method of Conducting-to, and Winding-upon, Spools or Bobbins, rovings of Cotton, Flax, Wool, or other Fibrous Substances.*

[Sealed 16th July, 1825.]

THE machinery which forms the subject of this patent, presents but little novelty either in its construction or arrangement, the only feature proposed as new is the contrivance for holding the yarns tight against the spools or bobbins, while the operation of winding-on is proceeding.

Plate I, fig. 4, shews one mode of applying the proposed improvement; *a*, are a series of drawing rollers of the usual construction, which are driven by toothed wheels of different diameters, upon their several axles, taking into each other, the axle of one of the lower rollers being turned by a band wheel or some other convenient mechanical means connected thereto; *b*, is a lateral shaft, sometimes called a tumbling shaft, having a bevelled toothed pinion fixed at each end of it. Bevel gear connected to the drawing rollers, drive this shaft, and the bevel pinion at the reverse end, by similar means causes the shaft *c*, to turn, upon which are the carriers or friction cylinders that drive the bobbins. The carrier cylinders *d*, of which there are a series, should be made of wood, covered with leather, and are mounted upon the shaft *c*, extending along the machine. Upon these carrier cylinders, the bobbins *e*, are intended to bear, and their two peripheries being thus in contact, the rotation of the carrier cylinders by the means above described, necessarily causes the bobbins to turn by means of friction.

The series of bobbins *e*, extending along the machine, are kept in their proper situations by their pivots turning in slots in the arms *f*, extending from the standards of the frame-work, and they are pressed upon the carrier cylinders by weighted levers or rollers bearing upon the ends of their axles.

The rovings given out from the drawing rollers *a*, pass through hollow spindles *g*, and these spindles are made to revolve rapidly, for the purpose of twisting the rovings by means of an endless band passed round the pulley *h*, fixed upon the rotatory shaft *b*, and round the pullies of the several spindles *g*, and over the tension pullies *i*, *i*. Toward the delivering end of each spindle, there is an excentric aperture for the rovings to be passed through, and brought round again into the centre in order to give tension.

The spindles are mounted on carriages *j*, which are capable of moving upon their fulcruum pins or pivots below, and in front of these carriages, there are affixed spring-pieces *k*, which guide the rovings through eyes to the bobbins, and press them against their surfaces so as to cause the rovings to wind tightly upon the bobbins. This pressure is effected by a weighted cord *l*, attached to each carriage, which draws it and the spindle forward; by these means the guide springs are always kept pressing against the bobbins.

In order that the rovings may be coiled uniformly upon the bobbins from end to end, the table *m*, upon which the carriages *j*, with the spindles and guides are mounted, is made to traverse to and fro, by the rotation of a toothed sector *n*, taking alternately into one of the lateral racks *o*, *o*, in the traversing table. This part of the machinery is moved by a band passing from a pulley on the revolving carrier shaft *d*, to a similar pulley on the lower shaft *p*. Which last mentioned shaft carries a series of friction cylinders *q*, coated with emery or other rough material, and upon these are the bobbins or spools *r*, like the upper cylinder, which turn by friction; and by the rotation of the bobbins *r*; an endless screw or worm on the side of the bobbin is made to turn the toothed wheel and vertical shaft *s*, at the upper end of which shaft is the toothed sector above described. By the rotation therefore of the shafts *d*, and *p*, the carrier on the bobbin *r*, is made to turn the vertical shaft; and the toothed sector at top acting alternately in one of the racks *o*, *o*, causes the traversing table, and the carriages with the spindles to move to and fro and consequently the rovings to be guided and laid in uniform coils upon the bobbins or spools from end to end.

By the rapid rotation of the spindles, the rovings are twisted from the spindles backwards as far as the delivering drawing rollers, which twisting is for the purpose of giving strength to the rovings, that is, tenacity to the fibres of the cotton or other material operated upon, and prevents it from stretching, but as soon as the rovings have passed the excentric part of the spindle, the twist will be immediately discharged, and the rovings wound upon the spools or bobbins in an untwisted state.

The rotation of the rollers which deliver the rovings being uniform, it is necessary to regulate the speed of the taking-up, or winding of the rovings on to the bobbins or spools, according to their increasing diameters. This regulation of the speed the machinery 'effects without assistance; the bobbins being turned by the friction of contact between their surfaces and those of the carrier cylinders, by which it will be perceived that however much the diameter of the bobbin may increase by the repeated thicknesses of roving wound upon it, only a given extent of its surface will be carried round at every revolution of the carrier cylinder, and hence the quantity of roving taken up in any given space of time, will be uniform throughout the winding. In order also to qualify the movements of the traversing table to the diminishing speed of the receiving bobbins, a quantity of yarn is wound upon a series of back bobbins *t*, equal to the quantity of roving intended to be taken up upon the bobbins *e*; this yarn is conducted to and wound upon the bobbins *r*, as they revolve by the means above described, and exactly as the bobbins *e*, increase in diameter, so will the bobbins *r*; and proportionately diminish in speed: and the traversing of the table being dependant upon the rotation of the bobbin *r*, it will of course move slower as the taking up proceeds.

When the bobbin *e*, has become full of roving, and the bobbin *r*, of yarn, it is necessary to place an empty bobbin at *e*, and to shift the full bobbin with the yarn from *r*, to the situation of the back bobbin *t*, and place an empty one in its situation; the winding of the yarn will then be effected, as the winding of the roving proceeds, in the manner above described.

A variation in the mode of applying this contrivance, is proposed, but as the invention consists simply in the carrier cylinders and guides, it is obvious that this may be arranged in a variety of ways to answer the intended purpose, and therefore further description becomes unnecessary.

The patentee says, an apparatus adapted to twist and untwist rovings has been applied in drawing machines something similar to this, he does not therefore claim the exclusive use of such an apparatus for twisting and untwisting the rovings, otherwise than as applicable to the process of conducting and winding the said rovings upon spools or bobbins; and together with this apparatus so applied, he claims the use and application of the instrument *k*, for pressing or holding the rovings tight against the bobbins in the act of winding thereon. He further says, "I do not claim the several parts of the machinery individually, but I claim the arrangement or combination as set forth and described, whereby the effects aforesaid are, or may be produced."

[*Inrolled January*, 1826.]

To RICHARD EVANS, *of Bread Street, and Queen Street, Cheapside, in the City of London, Coffee Merchant, for his Invention of certain Improvements in the Apparatus for, and Process of Distillation.*

[Sealed 7th January, 1826.]

THE improvements proposed under this patent are, 1st, a mode of agitating the wash in the still during the process of distillation; and 2ndly, the employment of grain, which has been soaked only, and not malted.

The patentee conceives that the ordinary mode of conducting the process of distillation is extremely objectionable, because all the materials operated upon in a stationary still, or alembick, are not subjected to one uniform heat, and that such parts of the materials as are in contact with the surface of the vessel at the bottom, frequently become partially burnt, and consequently, give to the spirituous vapour driven off, an empyrumatick flavour, which considerably injures its quality. The first part of the improvement therefore, is an apparatus by which the wash and other materials submitted to distillation, can be kept in constant agitation during the process, which effectually prevents any part of the materials from becoming burnt, and consequently, the spirituous vapour evolved will be free from any empyrumatick taste or smell

Plate I, fig. 3, shews the apparatus in section, disposed in such a way as to enable the still, and also what is called the rectifier to revolve upon axles; *a*, is the furnace, constructed of brick-work as usual, but in this case formed to receive the cylindrical vessel *b*, one half of which is intended to be encompassed by the flue. The vessel *b*, made of copper, has arms *c*, *d*, attached to it, upon which it is enabled to turn, as upon an axis or pivots; *e*, is a toothed-wheel fixed upon a horizontal shaft *f*, *f*, which wheel takes into another toothed-wheel *g*, on the arm *c*, and rotatory motion being given to the shaft and wheel *e*, *f*, by a steam engine, or any other power, the vessel *b*, will consequently be made to turn upon its axles, and the wash and other materials within be constantly agitated, at the time they are undergoing ebulition; there is besides several ledges in the interior of the vessel *b*, for the purpose of turning over the materials as the vessel revolves.

The fire in the furnace being thus made to act upon the outer surface of the vessel *b*, as it goes round, the wash and other materials within, will be made to boil, and the spirituous vapour evolved will as it rises pass off to the rectifier, through the axle *d*, which is made hollow for that purpose.

The rectifier is a worm-pipe *h*, *h*, attached to, and communicating with, a continuation of the hollow axle *d*, and the wheel *i*, upon the shaft *f*, taking into another toothed-wheel *k*, upon the axle *d*, causes the rectifier to revolve with the still *b*. This rectifier is enclosed within a wooden vessel *l*, *l*, in order to preserve its temperature at a uniform height, and a thermometer is introduced into this vessel to shew the degree to which its atmosphere is raised.

The aqueous parts of the vapour as they pass through the pipe *h*, become condensed, and by the rotation of the worm (in the manner of the Archimedes pump) are carried back again into the vessel *b*, for the purpose of being again distilled; while the pure spirit by its levity passes forward through the pipe to the refrigerator *m*, in the worm tub *n*, *n*, where it is cooled and condensed by the surrounding cold water in the ordinary way, and the spirit thus produced, is ultimately drawn off by the cock *o*.

The two parts of the hollow axle *d*, are united together and to the refrigerator, and packed at the joints *p*, *p*, in order to keep them perfectly steam-tight; and when the process of distillation is finished, the contents of the still *b*, may be discharged through the hollow axle into a tub or other vessel *q*, by lifting up the vessel *b*, upon its universal joint *r*: for which purpose a staple and cord *s*, is attached to the end of the axle *c*.

The patentee has found it desirable to introduce the wash into the vessel *b*, by means of a pump through the axle *c*, made hollow for that purpose, but the specification does not mention this.

In preparing the grain for distillation, it is soaked in cold water for about two days, the water being occasionally changed, in order to get rid of the colouring matter; when this is done, the grain is to be dried on a kiln, without allowing it to geminate, by which means more of the strength is preserved, than when it has been malted, and the colouring matter, which is extremely detrimental to distillers, is entirely got rid of.

[*Inrolled July,* 1826.]

To Alexander Allard de la Court, *of Great Winchester Street, in the City of London, Esq. for his Invention of a New Instrument, and Improvement in certain well known Instruments applicable to the Organs of Sight.*

[Sealed 6th May 1826.]

It is proposed by the patentee, to mount small mirrors or other reflecting surfaces in frames something like spectacles, to be attached to the head of any person, for the purpose of enabling him to see objects which are behind him, or at any considerable angle to the line of his vision. The way in which these mirrors are intended to be used, is by affixing them to light frames or bows, placed above the nose, crossing the face, the situations of the mirrors being near the temples, and turning upon joints by which they may be placed at any angle, so as to reflect and render visible, an object from behind or sideways, without the observer turning his head.

These mirrors may be attached to the hat of the wearer or mounted in frames of different kinds, fitted to the head and suited expressly to receive them; or they may be attached to the outsides of spectacles, or in any other way, applied for the purpose above stated.

[*Inrolled July,* 1826.]

To John Lane Higgins, *of Oxford Street, in the County of Middlesex, Esq. for his Invention of certain Improvements in the Construction of the Masts, Yards, Sails, and Rigging of Ships, and smaller Vessels, and in the Tackle used for Working or Navigating the same.*

[Sealed 11th February, 1826.]

The specification of this patent sets out no object, nor proposes any advantages to be derived from the peculiar kind of rigging described, but in the most laconic and abrupt manner, referring to a pen and ink sketch appended, (see Plate II), says, " fig. 3, is a sail, the tack head and peak being an arch, or equal distant from the sheet. The head of the sail is set upon the gaft *a*, the fore end travels between two ropes extending from the deck to the short gaft *b*, at the mast head; *c*, a flexible spar standing on the boom, on which the luff of the sail travels, with triangles or lacings; the luff of the sail is hauled forward by a rope through blocks on the mast."

Fig. 4, is described as " a lug sail set between a pair of shears, the luff of the sail travels up and down a flexible spar *a*, standing on the boom and having a rope to the mast head, which being hauled tight, sets the luff of the sail. A sail set in this manner as a mizen, with the boom attached to the stern of the vessel by a swivel, will keep the tack and vear the vessel." Such is the specification of this patent.

[*Inrolled July,* 1826.]

To ARNOLD BUFFUM, *late of Massachusets, in the United States of America, but now residing in Bridge Street, in the City of London, (being one of the people called Quakers), Hat-manufacturer, in consequence of communications made to him by certain Foreigners residing abroad, and Discoveries made by himself, for an Invention of certain Improvements in the Process of Making or Manufacturing and Dying Hats.*

[Sealed 18th February, 1826.]

THE patentee states, that there are four principle objects accomplished by this invention; 1st, facilities in the process of dying hats; 2nd, the production of a more perfect colour; 3rd, the prevention of any of the damages to which hats are subject in the common mode of dying; 4th, the accomplishment of the dying process in a much shorter time than by the usual methods, and of consequence lessening the deliterious effects of the dying materials upon the hat itself, which frequently does great injury.

It is considered by the patentee, that the process of dying hats will be greatly facilitated, and the colour improved, by occasionally removing the hats from the dye vat or copper, and exposing them to the oxygen of the atmosphere; and it is also observed, that the colour of the hats suffer injury by touching the sides of the vat or copper in dying, and in being pressed against each other. In order therefore to remove the hats occasionally from the dye copper with convenience and facility, and at the same time prevent their being brought in contact while immersed in the dying liquor, an apparatus is proposed by which these objects may both be effected.

Plate II, fig. 1, shews one method of constructing the apparatus; *a, a,* is a vessel formed like half a cylinder, that is semi-circular, with flat ends. This vessel is intended to be the vat or copper in which the dying process is to be conducted; *b, b, b,* is a wheel with several circular rims mounted upon arms, which revolve upon an axle *c*. In the face of these rims there are set a number of pegs at nearly equal distances apart, upon each of which pegs, it is intended to place a hat, and as the wheel revolves, to pass it into and out of the dying liquor, in the vat or copper.

This wheel may either be kept revolving with a very slow motion, by gear connecting its axle *c*, to any moving power, or it may be turned half round at intervals of about ten minutes apart; by which means, the hats hung upon the pegs will be alternately immersed for the space of ten minutes in the dying liquor, and then for the same space exposed to the atmospheric air.

In this way it is considered that the process of dying hats may be greatly facilitated and improved, as the occasional transition from the dye vat into the air, and from the air again into the dye, will enable the oxygen of the atmosphere to strike the dye more perfectly and expeditiously into the materials of which the hat is composed, than by a continued immersion in the dye for a much greater length of time.

A variation in the mode of performing this process, is suggested, and the apparatus shewn at fig. 2, is proposed to be employed; *a, a,* is a square vat or vessel containing the dying liquor; *b, b,* is a frame or rack having a number of pegs placed in it for hanging the hats upon, which are about to be dyed, in a similar manner to the wheel above described. This frame or rack is suspended by cords from a crane, and may in that way be lowered down with the hats into the vat, or drawn up and exposed to the atmosphere; which changes are recommended to be made every ten minutes until the dying is completed.

[*Inrolled August,* 1826.]

To JOHN STEPHEN LANGTON, *of Langton Juxto Partney, in the County of Lincoln, Esq. for his Invention of an Improved Method of Seasoning Timber and other Wood.*

[Sealed 11th August, 1825.]

THE mode of seasoning timber herein proposed, is by exposing it to a considerably high temperature in a vacuum, for the purpose of extracting the sap and other moisture from the pores of the wood, by evaporation. The method of carrying this process into effect is by the employment of large vessels of cast iron, in which the timbers are to be placed in vertical positions, and when closed and luted so as to render the vessels perfectly tight, the air is to be extracted by an air pump, and then the vessels heated by steam or hot water baths externally surrounding them.

The vessels for containing the timbers, are proposed to be cylindrical of about thirty feet long, and of four or five feet diameter; they may be cast in one piece, or in several pieces joined together by flanges and screw bolts, having pipes at bottom communicating with an air pump, but the shape and magnitude of the vessels must necessarily vary according to the description of timber or other wood intended to be introduced into them.

The timber about to be operated upon, being placed in the vessels, they are to be closed and luted perfectly air-tight, when stop cocks in the pipes below being opened, a communication is made between the interiors of the vessels and the air pump. The pump is now put in action by a steam engine or any other power, and a partial vacuum produced in the interior of the vessels. Steam or hot water being now applied to the external surfaces of the vessels their internal temperatures become raised, and the sap or other moisture contained in the wood, is driven out by the heat in a state of vapour. The air pump continuing to act, draws this vapour from the vessel as fast as it rises, and by these means all the moisture contained in the wood becomes evaporated from the wood by the heat, and expelled from the vessel by the air pump.

By way of rule for conducting the process in a correct manner, the patentee states, that when by a mercurial gage the vacuum is such within the vessel containing the wood, as to cause the mercury to fall three inches, then the temperature within should be about 130° Fah.; when the mercury falls only two inches, then the temperature should be about 120°, and when the mercury falls only one inch the temperature should be about 112°. The moisture from the wood will then rise in steam, which the air pump will draw off as fast as it becomes generated, and this steam in its passage from the containing vessel to the air pump, will become condensed by passing through a refrigerator of the ordinary construction cooled by streams of cold water.

In this way, the moisture and other materials contained in the sap of the wood, will be separated from the air and be deposited in a vessel called a receiver, while the air evolved from the wood is drawn out by the pump, and discharged, the moisture being by these means totally prevented from entering again into the pores of the wood or timber so treated.

For seasoning scantlings or other small pieces of wood a continuation of the process for about twelve hours is in general sufficient, but when large timbers are to be treated in this way, the process must be carried on without intermission for about a week.

In order to ascertain whether the operation has been continued long enough to effect the desired object, the patentee proposes the following method of trial. After the air pump has been at work for such a length of time as may be judged sufficient for the purpose of drawing out of the containing vessel all the air, and which has been continually arising from the wood during the operation by the action of the heat in the manner described, then shut the stop cock of the tube communicating between the containing vessel and the air pump and refrigerator, continuing the temperature of the containing vessel as before, and if the mercury in the gage continues to the same height, it will be evident that no more vapour is evolved from the wood, and consequently that the seasoning is complete; but if the mercury indicates that an alteration in the state of the vacuum is going on, then it is evident that the wood still gives out moisture, and the process must be continued until no further vapour is emitted.

The patentee does not claim any particular form of containing vessel, though he describes that which he deems eligible, but he employs any form of vessel which circumstances may render desirable, nor does he limit himself to any particular mode of heating the containing vessels but applies in such manners as may be found most convenient, steam or hot water bath for that purpose. The refrigerating apparatus for cooling and condensing the vapours may be a series of pipes or tubes, through which the vapour must pass from the containing vessel to the air pump, and these pipes or tubes may be externally acted upon by streams of cold water, or cold air, or by any other means that might be devised, suited to that object; and as to the air-pump, that is to be of the ordinary construction, with pipes leading to the lower part of the vessel or vessels containing the timber. The particular invention therefore claimed under this patent, is the process of drawing out by evaporation in a vacuum the moisture from the pores of timber; and in combining an air pump and refrigerator with a containing vessel for the purpose of effecting this object.

[*Inrolled February*, 1826.]

To Joseph Alexander Taylor, *of Great St. Helens, in the City of London, Gentleman, for his Invention of a New Polishing Apparatus for Household Purposes.*

[Sealed 15st August, 1825.]

The apparatus which constitutes the subject of this patent, is designed principally for cleaning table knives and forks in a very expeditious manner; it is represented in Plate II, at figs. 5, and 6, having knives placed in it in situations ready to be operated upon by a rubber, which by its vibrations polishes the surfaces of the articles fixed upon the bed beneath.

uggins's Impᵈ. Rigging.

Fig. 3.

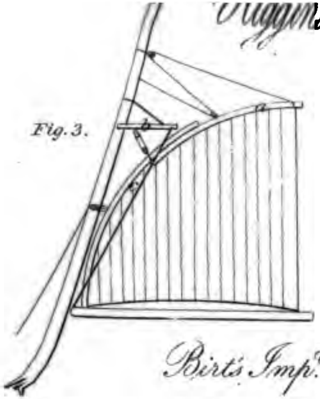
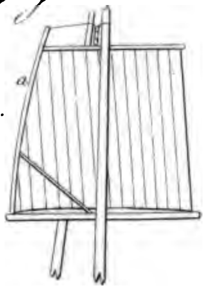


Fig. 4.



Taylor's Polishing Apparatus.

Fig. 5.

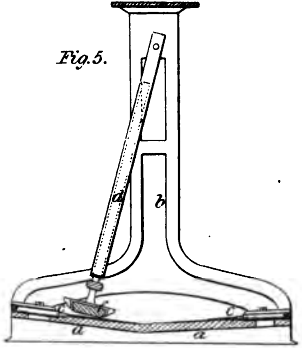
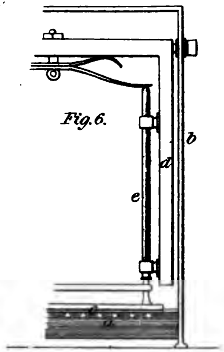


Fig. 6.



Birt's Impᵈ. Carriage.

Fig. 7.

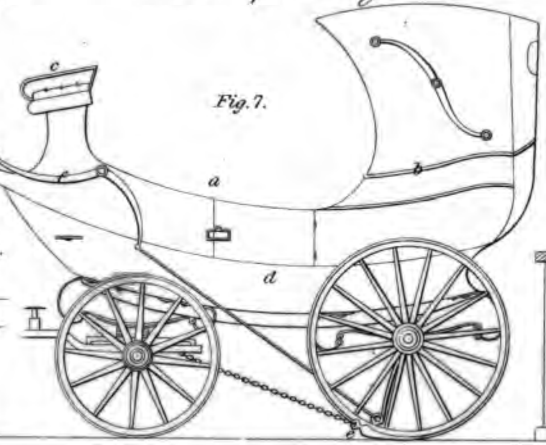
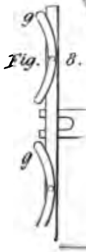


Fig. 8.



Buffum's Apparatus for Dying Hats.

Fig. 1.

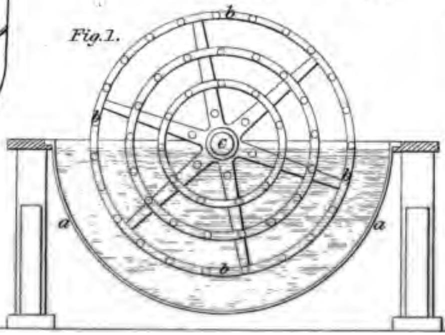
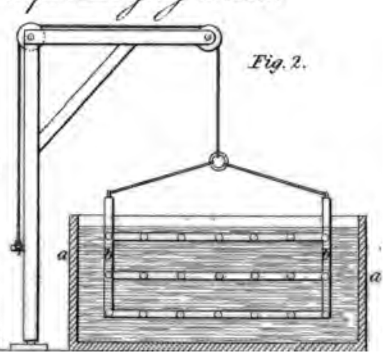


Fig. 2.



elasticity is given to the rubber by means of springs *g*, which press the upper ends of the sliding arms *e*, forcing them and the rubber downwards, so as to bear upon the articles under operation, and at the same time, give way to upward force caused by any protuberance on the surfaces of the articles which are being polished. On the sides of the rubber, there are small troughs, in which the brick dust or other polishing material is to be placed, and from whence it is delivered by sifting through small holes on to the bed.

In this way, any number of articles, as knives, forks, spoons, &c. being all placed in the same level, may be polished at one time by the rubber in the way described.

[*Inrolled February,* 1826.]

To Thomas Parrant Birt, *of the Strand, in the County of Middlesex, Coach Maker, for his Invention of certain Improvements on, or additions to Wheeled Carriages.*

[Sealed 23rd May, 1826.]

Our readers will we presume be considerably surprised on perusing this specification, to see a subject so completely destitute of novelty, purporting to be the invention of a London tradesman, and dignified with the title of patent.

These improvements on wheeled carriages, are stated to consist in the disposition of the outside passengers and the luggage; in the adaptation of a break or drag for holding one of the wheels in going down hill, and in the mode of attaching the horses to the carriage.

Plate II, fig. 7, shews a side view of the carriage, as in the drawing, accompanying the inrolled specification, but the only explanation we have is that, *a*, is the place for the outside passengers; *b*, for the inside passengers; *c*, for the driver; and *d*, for the luggage. The drag *e*, is suspended by a spring arm, and is let down so as to take hold of the rim of the hind wheel, by the driver lowering the lever *f*.

Instead of the traces of the horses being attached to the front bar as usual, with a pole between them, they are to be attached to the ends of elastic pieces, which turn upon centres fixed in the front bar, in the manner of *g*, *g*, fig. 8, in the way that leaders are connected to the pole, which contrivance is said to give freedom, and ease to the shoulders of the horses, and more liberty to work; at the same time prevents accidents which might occur, if the horses should be pressed against by other horses or carriages, and by placing the draft in the centre it will be accelerated.

[*Inrolled July*, 1826.]

To JOHN FREDERICK SMITH, *of Dunstan Hill, Chesterfield, in the County of Derby, Esq. for his Invention of Improvements in the process of Drawing, Roving, Spinning and Doubling Wool, Cotton, and other fibrous substances.*

[Sealed 19th January, 1826.]

THE patentee has discovered that it is very desirable, in the processes of roving, spinning, and doubling of wool cotton, and other fibrous substances, to prevent as much as possible the fibres of the material being disturbed, or drawn out of the positions in which they were first placed by the carding engine; and in consequence of this discovery, it is directed that in all the future operations to which the fibrous materials may be subjected, whether of roving, spinning, or doubling, that the fibres should be carried through the several engines in the same direction, that is always beginning with the end which was first delivered, or wound in the preceding machine : and this is the invention of improvements in the processes of roving, &c. which constitutes the subject of this patent.

The instructions of the patentee, in carrying this invention into effect are, that the operator should observe carefully which end of the sliver first came from the carding engine, and of consequence to introduce that end first into the roving machine, and continue to observe the same direction of the fibres in all the subsequent stage of operations, that is spinning, &c. And here it is to be observed, that if the rovings are conducted into cams, which is sometimes the case, that then, cams with their two ends open are to be used, as described in the patent of the above J. F. SMITH, ESQ. dated 1st June, 1825, (see our XIIIth vol. page 195) because by the employment of these cams the ends of the rovings which were first delivered, may be readily got at. And when the rovings are to be wound upon bobbins, it is desirable to employ the new invented bobbins with moveable ends, described in the said last mentioned specification ; for the capability which those bobbins possess of enabling the cop to be slidden off its barrel, will likewise afford the means of getting at the interior of the cop, for the purpose of finding the end of the roving first wound upon the bobbin, that the spinning may commence from that end.

This mode of proceeding, the patentee considers cannot fail of producing a much more smooth and even yarn, or thread than could be effected by the ordinary mode of roving and spinning.

[*Inrolled June,* 1826.]

To Richard Slagg, *of Kilnhurst Forge, near Doncaster, in the County of York, Steel Manufacturer, for his Invention of an Improvement in the manufacture of Springs chiefly applicable to Carriages.*

[Sealed 23rd May, 1826.]

This invention, the specification of which is comprised in a very few words, consists in rolling bars of steel for making carriage springs, between a pair of grooved rollers, one of which rollers is to be made convex, for the purpose of forming the bar into a concave, and to these rollers are also to be adapted, (in some way not shewn) horizontal rollers for making the edges of the bars uniform. This mode of making springs will it is said prevent them from getting out of order.

[*Inrolled November,* 1826.]

" in a moveable platform or car, supported upon legs or pillars, braced in diagonal directions to keep them in proper positions, and having wheels and axles at the lower ends to roll on a double railway crossing a valley, or the bed of a river."

This platform or car is to have a rope or chain attached to it at each end, for the purpose of drawing it along, which ropes or chains are to be carried over to the sides of the river or valley, and there made fast to a windlass, taking care that the passage of craft on the river be not obstructed by the said draft rope or chain. The windlass to which the rope at the fore end of the platform is attached, being turned by manual labour, the vehicle with its passengers and luggage will be drawn over the said river or valley.

There is no drawing appended to the specification, illustrative of this extraordinary contrivance, but we trust our readers will be able from the description fully to appreciate the merits of the invention.

A variation of the above plan is suggested, in which the draft rope or chain is dispensed with, and instead of it a wheel and pinion upon the carriage or raft, is to take into a rack on the side of the railway, crossing the river or valley; upon some such plan we presume as Snowden's rack and pinion rail way, or wheel way, described in our Xth Vol. page 337.

The ends of the platform or car, are to have suitable inclined planes or flaps for landing the passengers, animals, or goods, on the banks of the river, or edges of the valley; and there is to be a sort of plough attached to each side of the car, for the purpose of cleaning the railway from weeds or other matters, which might obstruct it; and also a kind of drag at each end of the car, in order to draw the mud which may accumulate, from the sides, into the middle of the river.

Such is the description given of this singularly absurd contrivance, which we need scarcely add, can never have been constructed except in the imagination of its projector.

[*Inrolled November*, 1826.]

To ROBERT MICKLEHAM, *of Furnival's Inn, London, Civil Engineer and Architect, for his having Invented or Found out, certain Improvements in Engines moved by the Pressure, Elasticity, or Expansion of Steam, Gas, or Air, by which a Great Saving in Fuel will be effected.*

[Sealed 6th June, 1826.]

THE construction of he apparatus, (which the patentee appears to have only in idea,) is not sufficiently set out in the specification, to enable us to lay his intentions fully before our readers. Indeed if we understand the patentee correctly, it should seem, that some imperfect experiments, with rude and incomplete models only, have led to the suggestion of this invention, which is a novel mode of putting a steam or vapour engine in action; viz. by generating the steam or other elastic fluid, in the interior of a hollow piston, and allowing it to discharge itself at proper intervals, into the upper, or lower parts of the cylinder, as the situation of the pistons may require. A method of effecting this object, is to a certain extent, explained, but not exhibited in drawings.

A cylinder of the kind commonly applied to steam engines, is to be employed, in which a piston works up and down as usual. In the upper part of the cylinder, a long tube is to be inserted, within which the rod of the piston slides. The piston is intended to be made hollow, with three horizontal compartments, if we understand right, and with valves opening outwards. The rod of the piston is to be hollow, and indeed have several small tubes or passages extending along it, from end to end.

One of the tubes in the piston rod is designed to conduct melted metal, (such we presume as the easily fusible alloys,) from a hot reservoir, down to the central compartment in the interior of the hollow piston, and another of the tubes is to carry the said melted metal up again from the piston into the reservoir. Connected to the rod of the piston in some way, there is to be a small injecting pump, for the purpose of forcing this melted metal down one tube, through the chamber in the piston, and up the other tube, making a continued circuit of the hot metal, from the reservoir through the chamber of the piston, as long as the piston is in action.

Another tube passing through the piston rod, is designed to conduct a fluid, whether oil, or water, or any thing else, which by heat may be converted into an elastic vapour or gas, and this fluid being by means of a small pump, connected to the piston rod, thrown upon the heated surface of the chamber within the piston, is immediately converted into steam, or other elastic vapour, and passing through the valves into the cylinder, there exerts its elastic force, and drives the piston as in an ordinary steam engine.

Supposing the piston to be at the top of the cylinder and the jet of fluid to be then injected on to the surface of the heated chamber, the steam or other elastic vapour generated would immediately pass through the upper valves, which at that time are alone permitted to open, and exerting its elastic force above the piston, would instantly drive it to the lower end of the cylinder. Another jet of the fluid being now thrown upon the heated chamber, and the lower valves at this time being alone permitted to open, the steam or other vapour generated, passes by apertures formed through the heated chamber, and instantly rushes out at the under valves, into the lower part of the cylinder, and accordingly raises the piston; the steam or vapour in the upper part being drawn away through eduction apertures, and condensed by the means commonly employed for that purpose.

In this way it is intended to generate the steam or other elastic vapour within the piston, and to discharge it into the cylinder, alternately on one side or the other of the piston, for the purpose of working the engine reciprocally, and with sufficient force to actuate machinery connected to the upper end of the piston rod, as in other steam engines.

Some hints are thrown out in the specification of applying these principles to air and gas engines, but in what precise way this is to be done, we are unable to state for the reasons given above.

[*Inrolled August*, 1826.]

To Benjamin Cook, *of Birmingham, Brass Founder, for his Invention of certain Improvements in Making Files of Various Descriptions.*

[Sealed 7th February, 1826.]

The intention of the patentee, is to reduce the expence of files of every description used in the polishing and finishing of metals, and other articles of mechanism or furniture.

Instead of making the files of steel bars with several cut edges as usual, it is intended to form them from steel plates, with the file or rough surface on one side only, and to attach these plates to blocks with handles, by means of dove-tailed grooves, or in some other convenient way, which blocks having the face of the file outwards, may be used as files, and when the rough surface is worn down, the plate may be displaced, and another with a new face placed in its stead.

Any description of file, whether fine cut, coarse cut, rasp, or bastard, may be made in this way, and though the plan is principally applicable to flat files, yet half round, and other forms may be made in the same manner also.

[*Inrolled August*, 1826.]

To JOHN ROTHWELL, *of Manchester, in the County Palatine of Lancaster, Tape Manufacturer, for his Invention of an Improved Heald or Harness for Weaving Purposes.*

[Sealed 16th January, 1826.]

THE object of the patentee, in the construction of these improved healds, or harness for guiding the warp threads in a loom, appears to be to afford greater space for the passage of the warp threads, as the sheeds open, or pass each other, than is afforded in the ordinary kind of healds employed for the weaving of fine fabrics.

It is proposed to make the loops of the healds double· that is, passing over the shafts at top and bottom, and meeting both at the back and front; and also that the headles shall be formed by long and short loops alternately; that is one of the upper loops being long, and the lower loop connected to it, short, the next upper loop is to be short, and its lower loop long, and so on alternately. By these means the knots of the one series of loops, will be a little distance above the knots of the other series of loops, and the warp threads passed between these knots will be depressed as the heald descends, by the upper series of knots, and raised as the heald ascends by the lower series of knots for the passage of the shuttle between them; the threads being thereby enabled to pass each other with greater freedom, and of consequence less friction, the space for the warp being open in the middle.

Healds are usually made of woollen or hempen cord, twisted very hard, and called heald or headdle yarn; these improved healds may be made of the same material, or they may be fine wires, which in some cases would perhaps be preferable.

[*Inrolled March,* 1826.]

To THOMAS HUGHES, *of Newbery, in the County of Berks, Miller, for his Invention of Improvements in the method or methods of restoring Flour, or Smutty Wheat, and rendering the same fit for use.*

[Sealed 23rd May, 1826.]

THE first thing to be done in cleaning smutty wheat is to wash it thoroughly, by stirring it about in a tub of water, and changing the water several times during the operation, using every possible precaution by continued agitation to wash off all the small particles of smut from the corn, and which from their lightness will swim on the surface of the water, and must be carefully taken off by skimming. The corn after being washed, must be drained in a basket, or course bag of flannel, when it will be ready for the next operation ; this washing part of the process is not however claimed as new.

The invention is,—as soon as the corn has been so washed, take about two bushels at a time, and spread it out upon a suitable surface (a trough is proposed) and rub it well with cloths of woollen, horse-hair, cotton, or flax, one of the said cloths being spread over the bottom of the trough, this is for the purpose of drying the corn, and removing any of the particles of the smut, which may happen to adhere. It is recommended that the cloths be made slightly damp, because in that state they will the more readily take up, and absorbe the moisture on the corn.

The rubbing must be considerable, to render the corn pure and bright, and it must be performed with as much expedition as may be convenient ; for if the corn is kept long damp, it may become soft, and will consequently be injured.

After this, the corn is to be dried by exposure to the open air or sun, or it may be placed upon a kiln for the purpose of drying it quickly ; as the whole of the operation from the beginning of the washing, to the perfect drying, and stowing in sacks, should not take more than the space of one hour ; and in that time two sacks of wheat may be very readily cleaned by one person.

The bottom of the trough in which the corn is to be cleaned, is recommended to be made of laths placed close together, so as to form an even bottom, but allowing the passage of air to the under side of the cloth, and the draining of water if that should be necessary. In rubbing and polishing the corn, it may sometimes be desirable to mix a quantity of bran or pollard with it, in which case the corn must be screened or sifted after it has been rubbed, for the purpose of removing the bran, and leaving the corn clean.

The patentee says, that the principle of his invention of a method of restoring foul or smutty corn is, after having washed it, to rub it thoroughly between cloths, and to dry it quickly, which is the essential matter of his patent right.

[*Inrolled November,* 1826.]

To LEVY ZACHARIAH, JUN. *of Portsea, in the County of Hants, Pawnbroker, for his New Invented Combination of Materials to be used as fuel.*

[Sealed 8th May, 1825.]

THE combination of materials proposed under this patent, are intended to make a sort of artificial coal, by the union of certain carbonaceous, resinous, and bituminous substances, which are in themselves mere refuse, and of little value.

Dry horse dung, or the dung of any other cattle, may be employed, with saw-dust, tanner's bark, or any other bark after it has been spent; or the refuse chips of dyeing woods, after they have been used by the dyer, or any other woody substances. Coke, or cinders beaten small, ashes, or any other carbonacious matters, clay, mud, and broken bricks, and a variety of other substances, any or all of which may be pounded to powder, and employed as the basis of the artificial coal.

These materials, when thus prepared, are to be mixed with water, and when properly combined are to be dried and cut into cakes, and afterwards steeped in coal-tar or oil, or grease of any kind in a boiling state. Which bituminous, resinous, and oily fluids, being absorbed by the dry material, the cakes or clumps when dry, become an artificial coal, or fuel fit for burning in all domestic situations.

The proportions in which these materials are to be mixed, is not a matter of much consequence, but the patentee has found that the following produce a very excellent article for the purpose required. One fourth dung as above, properly dried; one fourth saw-dust, or other pulverized wood; one fourth spent bark or tan; and one fourth mud or cinders, mixed together with water; and when dried upon a kiln or an air-stove, cut into cakes or clumps, as described. These clumps being then dipped in the boiling coal tar, or other hot liquor, as above stated, and allowed to remain for two or three minutes, are when dry fit for use; and when exhausted by burning, may be dipped again in like manner, and rendered a second time fit for fuel.

[*Inrolled November,* 1826.]

A patent for combining certain materials for fuel, was granted to Peter Davey, in 1821, see our 3rd Vol. page 177; and to J. Christie, and J. Harper, for a similar object, in 1824, see our 10th Vol. page 122, also to Thomas Sunderland, for an artificial coal, in 1825, see our 10th Vol. page 258, which last invention appears to be precisely, the same as that proposed in the specification of the patent above described.

EDITOR.

To William Witfield, *of Birmingham, for his Invention of certain Improvements in Making, or Manufacturing of Handles for Saucepans, Kettles, and other culinary vessels, and also tea kettle handles, straps, and other articles.*

[Sealed 19th January, 1826.]

This invention is a more expeditious and perfect method of preparing iron handles, and other small parts of culinary utensils, than by forging them as heretofore; which requires a considerable length of time and labour, and does not admit of producing articles as perfect and regular in form as the improved mode.

The patentee prepares at the forge in the first instance, a rudely formed piece of iron, somewhat approaching to the shape of the handle or other article intended to be made, and having heated this piece to about what is called a white heat; he places it between a pair of steel dies, formed to the exact figure and size of the intended handle or other article under operation, and then by a stamping press, he strikes the dies together upon the heated piece of iron, and by that means presses it into the required form.

Immediately upon the article having received its first impression, it is withdrawn from the dies, and scraped all over by a file, to remove the scales which form upon the surface of the metal, and this being done, it is introduced again into the dies, and receives a second, and a third blow if necessary, for the purpose of perfecting its shapes and figures.

It is of considerable consequence to remove the scales from the surface of the metal in the first instance, for without doing this, the article when it became ultimately polished and made bright, would prove unsound, that is its surface would break up in flakes.

It is obvious that the process here described will apply to the making of a great variety of articles connected with the manufacture of culinary vessels, such as handles, ears, straps, studs, arms, nobs, legs, &c. of saucepans, kettles, pots, urns, and the like; and in some of those cases the patentee does not forge the rough figures of the article in the first instance, as stated above, but stamps them out of rods or suitable bars of metal, and when they are so far made, the edges and leaf or bur left by the stamping press is cut off by shears, or trimmed by a file.

[*Inrolled July,* 1826.]

To THOMAS JOHN KNOWLYS, *of Trinity College, Oxford, Esq. in consequence of a communication made to him by a certain Foreigner residing abroad; for an Invention of a new Manufaeture of Ornamental Metal or Metals.*

[Sealed 13th June, 1826.]

THE subject of this patent is a peculiar alloy of metals which is to be employed for inlaying gold and silver articles, in order to render them ornamental. The inlayed parts of the gold or silver, are to be relieved by engraved divices, and other kinds of decorations, such as gold and silver smiths commonly employ, and when complete, the work is to be denominated *Tulu Work.*

The alloy is made by combining half an ounce of standard silver, with three ounces of fine copper melted together; during which operation, five ounces of lead is to be added gradually in small portions, and these are to be constantly stirred with a dry stick, during the melting, that they may incorporate perfectly together. After their having become melted, one and a half pounds of sulphur and half an ounce of sal ammoniac is to be introduced into the melting pot, the whole being kept stirring until the sulphur has become volatalised.

Having thus prepared the alloy, it is to be poured out into an iron pot, having about an ounce of sulphur spread over the bottom, and this pot is then to be immediately closed up, and the metal left to cool. When perfectly cold, the metal contained in the pot is to be broken up into small lumps, and these lumps being melted again the metal is to be cast into small ingots ready for use. This alloy is now called New Metal, and is to be pounded and finely granulated in a mortar, and when reduced to powder is to be mixed with a solution of sal ammoniac one part, and water three parts, making the metal into a paste.

The gold or silver article intended to be inlaid, being engraved or cut away, at those parts where the new metal is to be introduced, the paste is then laid upon the part about a sixteenth of an inch thick, and it is allowed to remain there to dry on in a cake. When the paste has become perfectly dry, the articles so coated, are placed upon a hearth, or in an enamellers oven where the coating of alloy becoming fused, the article is immedietely withdrawn, and when cold the alloy will be found firmly adhering to the gold or silver.

The surface of the new metal is now to be filed down, and polished and engraved, or otherwise ornamented in the way gold and silver work is commonly decorated and when finished, the inlaid metal will assume a different appearance to the other parts of the gold or silver.

[*Inrolled December,* 1826.]

On Barton's Patent Metallic Packing for Pistons.

We have received two communications from engineers, relative to Barton's patent metallic packing for the pistons of high pressure steam engines, complaining of the very unjust manner in which Mr. Barton and his invention has been treated by the conductors of the *Repertory of Arts,* in the number of that work for last month (August) by introducing a series of remarks and criticisms highly injurious to the patentee, and purporting to be the report of a trial which lately took place in the Court of King's Bench, in the matter of Barton *v.* Hall, for an alledged infringement of the Plaintiff's patent right.

We have no disposition to occupy our pages with a discussion of the merits of Mr. Barton's invention, of the alleged infringement of Messrs. Halls, or the misrepresentations of the *Repertory of Arts,* but we do think that a public Journalist steps very much out of his own path, and that of justice too, in giving a fabricated report of matters and things which never took place, for the obvious purpose of serving one party to the prejudice of another.

We speak thus with confidence, having been present at the trial, and having subsequently read the report above alluded to. Certainly nothing was said upon the trial to the prejudice of Mr. Barton's invention, on the contrary it was admitted on all hands to be extremely valuable, but having failed to producé satisfactory evidence that the defendants had really pirated his invention he was necessarily *nonsuited.*

From whence the paper came, said to be the opinions of Dr. Olynthus Gregory we know not, nothing of the sort appeared in court, but the motives for introducing such a paper in print, are as obvious as they are disengenuous. As to the arguments contained in the paper of Dr. G. we shall not presume to designate them in the way our correspondents have, but we certainly find assertions which would not bear the test of scrutiny, and very much doubt whether the Doctors permission was obtained to the publicatian of the paper.

In short Messrs. Hall's have escaped harmless from the trammels of the law this time, and therefore ought to be silent, defective evidence is not the most satisfactory mode of exonoration; the question may yet be fairly met, than the real merits of the case will be seen.—EDIT.

Novel Inventions.

Improved Steam Boiler.

We feel much pleasure in communicating to our readers, that Mr. W. H. James, who's improved mode of constructing steam boilers, we described in our XIIth Vol. page 290, has now completed an engine with a boiler upon this principle, and which has been adapted to the pumping of water, so as to prove its power in the most decisive manner. We are informed upon authority in which we have great confidence that this small engine, which is the first made on the plan, acts very regularly, and raises seven hogsheads of water per minute, thirteen feet high, at an expence of only 1s. 6d. per day. The boiler, engine, and apparatus complete, is perfectly portable, and particularly suited to steam boats, or loco-motive carriages, and to one of which we expect to see it shortly applied. The whole of the engine and boiler, is contained in a frame 5ft. 4in. by 2 feet, the cylinder of the engine has only three inches bore, and one foot stroke. It may be now seen in action almost every day at the factory of Mr. J. Jones, Well's-street, Well-close-square.

The following observations have been put into our hands, which we presume to be the remarks of the inventor, circulated among his friends.

"The engine now at work is the first constructed under the patent, and although it proves the value of the invention, yet it will be amended in the adaptation of the machinery in future engines; it nevertheless works with more than *Two-Horses Power*. From the result of its operations during three months trial, it appears that an engine of the largest construction, may be worked with less than one half the expence of the best condensing engine, and occupy only one tenth of the space, and to be equal to only one tenth the weight. Independent of the above advantages, there will be a considerable saving in the first cost, particularly in engines of great power; and for the reasons above stated, this invention will be found very desirable for fixed engines; but for the purposes of navigation and loco-motion, it will be unrivalled.

Its advantages over the common engines are,

Its perfect Safety, which has been proved by the pressure of steam, to more than ten times its working power.

Its portability.—The boiler and its suitable engine, may be constructed so as not to exceed 2-cwt. to each horse power, for engines of ten horse power and upwards.

Its space is not more than 1-10 that which is necessary for ordinary engines.

The quantity of water, (in proportions to a given power,) is less than that required by any other engine, in consequence of the steam, after it is generated, being expanded, by coming in direct contact with the flues.

Its saving in Fuel is so considerable, that the cost in London would be less than 9d. per day, for each horse power.

And lastly, *the primary cost* will not be greater than that of engines on the ordinary construction.

Dutch method of extracting Blue Colour from Woad.

THE leaves are put together with water into a cask, and the mass loaded with weights. In this state they are suffered to remain for sixteen or eighteen hours, or until the saturation is complete, which is indicated by the water assuming a yellowish green tincture. The leaves are then taken out, and the solution suffered to remain a few minutes, in order to precipitate its earthy particles, it is then filtered through a sieve of iron wire, horse hair woollen, or silk, and afterwards stirred violently for a quarter of an hour, with a wooden spatula.

At this stage of the process, a quantity of lime water is pound into the extract, and the stirring is continued for some minutes longer, after which it is suffered to repose for several hours. At length a beautiful blue sediment will become deposited at the bottom of the vessel, and nothing further is requisite than to filter, and afterwards dry it in small heaps upon a wooden table, by the rays of the sun, in order to bring it to a dry, and marketable state. *Bul. des Sciences.*

Improved Distilling Apparatus, by M. MARLLARD DUMISTE.

M. Payen, in the name of the committee of chemical arts has made a report on this apparatus to the Society of Encouragement.

The still is designed for the easy and economical preparation of aromatic liqueurs for the table. It consists of an ordinary alembic containing its wash, (bain marie) and communicating by the beck or curved part of its head with the upper extremity of a cylinder, which is divided into many receptacles by conic partitions.

The first of these receptacles is closed at its lower end by a cock; the second, immediately under it, the bottom of which is perforated with holes like a cullender, is furnished with a filterer composed of two woollen discs, between which a sheet of paper is introduced. This kind of filterer is placed over four other filterers or receptacles of a similar kind, and finally the lower part serves as a recipient, to the bottom of which a cock is adapted for drawing off the produce.

When it is desired to prepare an aromatic and sweetened liquor, by this process of distillation the spices and alcohol diluted with water are placed in the wash; a proper quantity of sugar is then dissolved, and the syrup is poured into the upper receptacle of the cylinder. The distillation is performed with the customary precautions, and as soon as the necessary proportion of spirituous liquid has passed into the cylinder, which may be observed by a candle placed at a proper height, the whole of the mixture of syrup, and aromatic alcohol is let out into the filterers.

This mixture, in passing successively through the five filterers, becomes completely limpid, and the prepared liquor, without being decanted, may be drawn out of the recipient fit for use. *Bul. des Sciences.*

A mode of Preparing Paper which shall resist moisture. By M. Engel.

This process consists in plunging un-sized paper once or twice into a clear solution of mastic in oil of turpentine and drying it afterwards by a gentle heat. The paper thus prepared, without becoming transparent, has all he properties of writing paper, and may be used for that purpose. It is particularly recommended for pass-ports, for the books of porters, and other labourers, and indeed is desirable for a great variety of purposes for which paper that is capable of absorbing damp, is very inconvenient. When laid by, it is perfectly secure from being injured by mouldiness or mildew, and is not likely to be destroyed by mice or insects.

The inventor states, that a solution of caoutchouc, would produce a still better effect, but he does not say in what way that elastic gum is to be dissolved or diluted for use, or dried afterwards. This mastic paper has been used by printers, who have discovered in it the above-mentioned qualities. By adding a little verdigris to the solution, the paper may be made to assume a greenish tint, similar to the paper known in Paris under the name of "*Papier de Cassabon.*"—*Bulletin des Sciences, &c.*

New Invented Apparatus for Expeditiously Drying Mildewed Corn.

THIS apparatus consists of two long concentric metal pipes or tubes, winding in a spiril direction. The smaller pipe, which is in the centre of the large pipe, forms a passage for the heated air, and the larger pipe receives the corn for drying, by means of a hopper attached to its upper end. The spiral shape of the larger or conducting pipe, converts it into a long inclined plane, in descending which, the corn is sufficiently heated to render it perfectly dry before it is discharged at bottom.

Annal mens de l'Industrie.

Surgical Instrument, "Lithontriptor."

MR. SCHEINLEIN, surgical instrument maker, Paris, has materially improved the combination and effects of Dr. Civial's and Mr. J. Lukin's instruments, to destroy the stone in the bladder, without Lithonomy, (described in our XIIth Vol. page 251.

These improvements consist, 1st. in having reduced the stem of the instrument one-eighth of an inch smaller.

2nd. That the three spring pincers, which are to hold the stone, the expanding borer, and a fourth spring pincer, provided with a head or a cap, closing outwardly to facilitate the introduction into the uretra, are *all* contained within the stem tube.

3rd. The *four* spring pincers or holders, can be worked *separately*, or together, and that one of them may be used to turn the stone internally, so as to attack it on various surfaces.

4th. That water or any other liquid may be injected by a feed pipe, during the operation, without withdrawing the main tube, and also a means is afforded of carrying off the superfluous water, without giving any inconvenience to the operator.

5th. The borer and the three holds can be withdrawn to be cleansed, and replaced, leaving the tube in the uretra.

6. The borer can be separately withdrawn, and its diameter, during the operation, increased or diminished, from 2-8ths to 6-8ths of an inch.

7th. That the instrument may be used, only holding it with the hands, or be made a fixture, to the operation table.

8th. That the improved Lithontriptor, when the operation is over, can altogether be taken asunder, and cleaned.

9th. That this instrument will not require, in most cases, any incision in the the uretra, on account of its small diameter, and its introduction cup.

C. A.

Plan for preserving the Walls of New Buildings from Dampness.

The author considers the introduction of moisture into buildings, at the effect of a capillary attraction. The less time (says he) is taken to finish buildings, the more rapidly does the water penetrate, because when they are not yet dry they more easily conform themselves to the humidity of the soil which supports them, and the evil is more or less rapid in proportion as the earth contains more or less nitre or other salts, and even the most impenetrable cements hitherto employed, cannot prevent at all points the ascension of water, through the medium of capillary tubes. It would be desirable to cover the whole thickness of the wall, at about two feet from the earth with an impenetrable substance, and to preserve likewise the lower part of the building from the dampness of the soil.

The most certain method of doing this, would be by means of a layer of sheets of lead about a line thick soldered together. If, notwithstanding the absence of air, the oxidation of this metal were apprehended, and the consequent penetration of dampness, through the pores of the oxyde, recourse might be had to another method less expensive, and which would equally well answer the proposed end.

That is, to spread over the whole thickness of the wall, a layer of pit coal, mingled with pitch or rosin, and powdered charcoal. This material being soft, when loaded with the weight of the building would fill up all the vacuities, and prevent the access of moisture most effectually. *Bul. des Sciences.*

Substance that inflames upon contact with water.

At Doulens, near Amiens, there is a large manufactory for spinning cotton which is lighted by oil-gas. This gas upon its return from the cast iron cylinder, filled with red hot coal, where it is formed, traverses a reservoir of of oil, in which it deposits a white liquid matter, which can be taken away by means of a spigot, situated at the lower part of the reservoir. The workmen employed in this duty, having dropped some of it to the ground, it appeared to be all on fire. [*Bul. Univ.*

Polytechnic and Scientific Intelligence.

ASTRONOMICAL SOCIETY OF LONDON.

JUNE 8, 1827.

A paper was read by F. Baily, Esq. entitled "Remarks on the Astronomical Observations of Flamsteed." The object of this communication is to draw the attention of astronomers to the observations of that eminent observer, which the author considers, from their great number, from the care bestowed upon them, and for the very long period elapsed since they were made (nearly 140 years,) to be deserving of more strict examination than they appear yet to have received. The imperfection of the instruments used by Flamsteed appears to have been one chief cause of this neglect, being in fact only a mural arc of 120° with cross wires in the focus of the telescope fixed in the plane of the meridian, and an uncompensated clock. The arc, though of 80 inches radius, could be read off only to 10″, or at most by an estimation of proportional parts to 5″. With these however, imperfect as they necessarily were, he succeeded in constructing a catalogue of the mean right ascensions and declinations of about 3000 stars, which has served as a basis for the observations of all subsequent astronomers.

This catalogue was of course very inadequately reduced. Aberration and nutation were unknown in Flamsteed's time, and refraction very imperfectly; so that the catalogue, as it stands, cannot be considered as at all fairly representing the observations. It was, however, for many years the only catalogue in the hands of astronomers, till it gave way to Mayer's, which being deduced from observations made with better instruments, and by an astronomer of great ability, was held more worthy of confidence. But, Mr. Baily observes, the observations of Mayer were made in precisely the same way as Flamsteed's, the right ascensions being determined by the time of the stars passing the verticle wire of the telescope of a mural quadrant. His clock, however, was compensated, and his arc better divided, and no doubt better adjusted, More confidence therefore is to be placed in any *one* observation of Mayer's than in any corresponding *one* of Flamsteed's. But the number of Mayer's stars is not above one-third of Flamsteed's; the greater part were observed only *once*, and not above fifty so often as six or seven times. Whereas Flamsteed observed most of his stars several times; above a tenth part more than ten times many of them more than fifty, and some even more than 100, thus δ *Geminorum* was observed 103 times; *Spica* 108; γ *Geminorum* 124; *Aldebaran* 125; *Regulus* 133; η *Geminorum* 163, and μ *Geminorum* 193 times. It must be evident then, that much, that is defective in an instrumental point of view, must be compensated and rectified by the frequency of the observations; and, although eclipsed by the catalogues of Bradley and Piazzi, the author, considering the great age of Flamsteed's, regards it as possessing a degree of interest, in common with all ancient and authentic records, which ought never to be lost sight of.

He therefore conceives that it would be an object highly worthy the attention of astronomers to re-examine and reduce the original observations of Flamsteed, with the aid of all the accessions of accuracy which modern improvements have introduced, in the determination of the corrections. The chief difficulty would lie in the corrections for the barometer and thermometer, which Flamsteed has not recorded. But he remarks that, should no registers of these instruments at that period and in that district be found elsewhere, no great error would arise from employing a mean state of the barometer, and adopting a scale of temperature deduced for each day in the year, from the meteorological journal of the Royal Society, from a mean of several years by night as well as by day.

It is not known at what precise period Flamsteed's catalogue was constructed; his observations were made between 1689 and 1719, and the reductions were performed between 1696 and 1708. But, besides the observations reduced and published in his catalogue, there exist in his journal a great many which have never yet been reduced at all. Miss Caroline Herschel has discovered no less than 560 of this kind, and these are probably not all. These ought to be included in any re-computation which may be set on foot.

One peculiarity in Flamsteed's mode of observation is to be considered as fortunate, not only as affording facilities for reduction, but as producing a probable exemption from many instrumental errors; viz. that it appears to have been his practice to observe in zones. Still the task of reduction could not but be considerable. Mr. Baily, however, conceives that great benefit could not but result were it only partially executed; reducing 200 or 300 of the principal stars from the *total* observations of each star. If this were done, it would authorize a fair judgment of the value of the whole mass; and were such partial reduction attended with satisfactory results, he thinks no doubt could exist that public spirit enough would be found to support and carry through the bold and difficult undertaking he suggests. To any one who may be inclined to make the preliminary trial, he recommends as a useful aid Miss Herschel's "Catalogue of Stars taken from Mr. Flamsteed's observations," published by the Royal Society in 1798, which contains a list of all the stars observed by him, but not in his catalogue, as well as an index to every observation of every star, and a copious list of errata.

Mr. Baily concludes by expressing his hope that these remarks may attract the attention of some astronomer who has both talent and leisure for the pursuit of an enquiry of this kind, and who may thus become the means of restoring Flamsteed's observations to the high rank they once held, and to which it is hoped they will still be found justly entitled.

Mr. Thomas Taylor, jun., of the Royal Observatory at Greenwich, transmitted the following ephemeris of the positions of the four new planets, at the ensuing oppositions, computed by himself; at the same time remarking that the places of Ceres and Vesta differed materially from the places as given in Bode's *Astronomische Jahrbuch*.

The computations are for the *noon* of each day.

VESTA.			JUNO.		
1827	AR	Dec. N	1828	AR	Dec.
	h m s	° '		h m s	° '
Nov. 25	5 50 58	18 43	March 5	12 42 35	—0 38½
26	50 10	18 44½	6	41 57	—0 31
27	49 20	18 46	7	41 18	—0 23½
28	48 28	18 47½	8	40 38	—0 15½
29	47 34	18 49	9	39 58	—0 7½
30	46 39	18 50½	10	39 18	+0 0½
Dec. 1	45 42	18 52	11	38 37	+0 9
2	44 44	18 53½	12	37 55	+0 18
3	43 44	18 55	13	37 12	+0 27
4	42 43	18 56½	14	36 28	+0 36½
5	41 31	18 58	15	35 42	+0 45½
6	40 38	18 59½	16	34 56	+0 54½
7	39 34	19 1½	17	34 10	+1 3½
8	38 29	19 3	18	33 23	+1 12½
9	37 23	19 4½	19	32 36	+1 21½
10	36 17	19 6	20	31 49	+1 30
11	35 10	19 8	21	31 2	+1 39½
12	34 3	19 9½	22	30 14	+1 48½
13	32 56	19 11½	23	29 26	+1 57
14	31 48	19 13	24	28 39	+2 6
☍ 15	30 40	19 15	☍ 25	27 52	+2 15
16	29 32	19 17	26	27 4	+2 23½
17	28 24	19 18½	27	26 16	+2 32½
18	27 17	19 20½	28	25 28	+2 41
19	26 10	19 22	29	24 41	+2 49½
20	25 3	19 24	30	23 55	+2 58
21	23 57	19 26	31	23 8	+3 6½
22	22 51	19 27½	April 1	22 21	+3 14½
23	21 46	19 29½	2	21 36	+3 23
24	21 42	19 31	3	20 50	+3 31
25	19 39	19 33	4	20 5	+3 39
26	18 36	19 35	5	19 20	+3 47
27	17 34	19 37	6	18 36	+3 54½
28	16 31	19 39	7	17 52	+4 2
29	15 29	19 41	8	17 9	+4 10
30	14 28	19 43	9	16 27	+4 17½
31	13 27	19 45½	10	15 46	+4 25
1828			11	15 5	+4 32½
Jan. 1	12 27	19 47½	12	14 25	+4 39
2	11 28	19 49½	13	13 44	+4 46
3	10 30	19 52			

PALLAS.						CERES.					
1827	AR			Dec. N.		1827	AR			Dec. S.	
	h	m	s	°	'		h	m	s	°	'
Aug. 7	22	10	46	9	56	Spt. 6	0	57	23	14	23
8		10	5	9	48½	7		56	50	14	30
9		9	24	9	40½	8		56	15	14	37
10		8	42	9	32	9		55	39	14	44
11		7	59	9	24	10		55	2	14	51
12		7	16	9	15½	11		54	23	14	58
13		6	33	9	7	12		53	43	15	4
14		5	49	8	58½	13		53	2	15	10
15		5	4	8	49½	14		52	20	15	16
16		4	19	8	40	15		51	37	15	22
17		3	34	8	30½	16		50	53	15	28
18		2	49	8	21	17		50	7	15	34
19		2	4	8	11	18		49	20	15	40
20		1	19	8	1	19		48	32	15	46
21	22	0	34	7	51	20		47	44	15	51½
22	21	59	48	7	40½	21		46	56	15	57
23		59	2	7	30	22		46	7	16	2½
24		58	16	7	19	23		45	17	16	8
25		57	30	7	8	24		44	26	16	13
26		56	44	6	56½	25		43	35	16	17
☍ 27		55	58	6	45½	☍ 26		42	44	16	22
28		55	10	6	34	27		41	52	16	26
29		54	26	6	22½	28		41	1	16	31
30		53	41	6	11	29		40	9	16	35
31		52	56	5	59½	30		39	17	16	40
Sept. 1		52	12	5	47½	Oct. 1		38	25	16	44
2		51	28	5	35½	2		37	3	16	48
3		50	45	5	23½	3		36	40	16	51½
4		50	2	5	11½	4		35	48	16	55
5		49	20	4	59	5		34	56	16	58
6		48	39	4	47	6		34	4	17	1
7		47	58	4	34½	7		33	1	17	4
8		47	18	4	22	8		32	21	17	7
9		46	39	4	9½	9		31	30	17	9½
10		46	1	3	57	10		30	39	17	11½
11		45	24	3	44½	11		29	48	17	13½
12		44	47	3	32	12		28	58	17	15
13		44	11	3	19½	13		28	8	17	16
14		43	35	3	7	14		27	19	17	17
15		42	1	2	54	15		26	30	17	17

A paper was next read by Mr. Utting, "On a *new period of eclipses.*" In this communication, Mr. Utting adverts to the well-known Chaldean periods of 223 lunations and 6890 lunations: but, besides these, there are others that have been brought in aid of computations relative to eclipses. The new period, which Mr. Utting proposes, consists of 3803 lunations, or about 307 Julian years and 174 days; at the end of which time he says the sun and moon will be in conjunction at the opposite node to that from which they started: and at the end of 7606 lunations they will be in conjunction at the same node. Mr. Utting gives the secular motions of the sun's longitude and anomaly, and of the moon's longitude, anomaly and node, from the most recent tables; from which he deduces the correct period of a mean lunation; and thence the other necessary quantities for the computation of tne time of the mean conjunctions.

The next papers were a series of observations by Major Hodgson: 1. On the transit of Mercury over the sun's disc, on Nov. 4, 1822. 2. Occultations of stars by the moon; particularly of the *Pleiades* on March 17, 1823. 3. A set of equal altitudes for determining the time at Futty Ghur. 4. Transits of moon and moon culminating stars at the same place.

Mr. Baily read the following extract of a letter from Professor Harding of Gottingen.—"You wlll be pleased to hear of a small *variable* star, which I have discovered since June 9th, in last year It is situated in *Serpens*; and my observations (which however are not very correct) give its position for 1800, as follows:

AR = 235° 22" 3"   D = + 15° 44' 48"

"It has, at this time, its greatest light; and will soon begin to diminish. As far as I have yet observed, its period seems to be about eleven months. This star is neither in the *Histoire Celeste*, nor in Bessel's *Zones*: nor have I observed it before the year 1826. When smallest, it is *entirely invisible.*"

A letter was read from Mr. George Innes, of Aberdeen, giving the results of his computations relative to the solar eclipse of the 28th of November last. He states that in calculating the parallaxes in longitude and latitude, he used the method of the Nonagesimal, and went over the process for each of the places, both according to the method used by Dr. Brinkley, and to that of Delambre. The difference in the results did not, in any case, exceed three-tenths of a second. For the reduction of the latitude, and equatorial parallax, the compression $\frac{1}{309}$ was used. No corrections were applied to the semidiameters of the sun or moon, for irradiation or inflexion. The augmentation of the moon's semidiameter for each of the places were obtained from Delambre's formulæ *only*. The following are the observations used in the computations, which are all expressed in *mean time*. In computing the Greenwich observation, he adopted that which was made with the five-feet equatorial; but it appears from the observations made at other places (except Dublin) that some of the others are nearer the truth.

Bushey Heath =	28d	21h	46m	4s,0 beginning.	
	28	23	58	19,0 end.	
Epping ....=	29	0	0	54,0 end.	
Greenwich ..=	29	0	0	11,5 with 25 inch achrom.	end
	..	..	..	12,4 with 46 inch do.	
	..	..	..	13,4 with 5 feet equat.	
	..	..	..	16,5 with 30 inch achrom.	
	..	..	..	18,0 with 7 feet Newt.	
Dublin ....=	28	23	25	30,0 end.	
Armagh ....=	28	23	24	10,8 end.	
Aberdeen....=	28	23	49	45,1 end.	

From these Observations Mr. Innes obtained the following results:

		Conjunction Nov. 28. *Apparent* time.	Longitude.
Bushey Heath	*b*	23h 35m 50s,66	
	b & *e*	35 50 ,19	
	e	35 47 ,64	1m 25s,57 W.
Epping		37 38 ,08	0 24 ,87 E.
Greenwich		37 13 ,21	
Dublin...........		11 51 ,40	25 21 ,81 W.
Armagh		10 34 ,23	26 38 ,98 W.
Aberdeen........		28 48 ,30	8 24 ,91

The results deduced from the observations at Bushey Heath, marked *b*, *b* and *e*, and *e*, are obtained from the *beginning* of the eclipse, from the *beginning and end* conjointly, and from the *end*. And from *these* observations Mr. Innes obtains + 9",68 for the error of the tables in longitude, and — 2",44 for the error in latitude. The lunar tables made use of were the recent ones of M. Damoiseau; and Mr. Innes has subjoined to his paper the whole of the elements employed in the calculations.

A description of an instrument called a *Tangent Sextant*, intended to determine the distances of objects from an observer, when their distances from each other are known, was communicated to the Society by Captain John Ross, R. N. who states that it was invented by an eminent land surveyor, who lived to finish but two of them; and Captain Ross has since made some improvements in the instrument.

The index-mirror is placed diagonally across the bar of the index, having the centre in a line with the front edge of the index and, in observing, the telescope is so placed that the centre of the instrument is towards the observer, and the limb directed towards the objects, which are brought in apparent contact, as in othe reflecting instruments. The edge of the revolving index intersects another fixed and graduated radius, passing through the zero of the limb; and the figures at the point of intersection indicat the number of times which the distance of objects from each other is contained in the distance of the observer from the nearer of them, *when the angle at the nearer object is a right angle*, the only case of the problem which, in this application of his instrument, the invention appears to have had in contemplation.

A method of making the necessary computations for deducing the longitude from an occultation of the moon, by Lieut. C. R Drinkwater, R. N. was read. In the method proposed by Mr. Drinkwater, the sun's right ascension, and the moon's declination horizontal parallax and semidiameter, are taken from the Nautical Almanac for the approximate Greenwich time; and the stars meridian distance being found, the latitude and parallax are corrected for the earth's ellipticity.

Then, calling the reduced horizontal parallax P, the stars meridian distance M. its polar distance p, and the latitude l: he computes arc A, from $\tan A = \cos M . \cot l$; arc B, from $B = p + A$; C, the principal effect of parallax in polar distance from $C = P \sin l, \sin B . \sec A$, (— when A is less than p, otherwise +, unless M exceeds 6^h, when it is always --); D the parallax in right ascension from $D = P. \cos l. \sin M. \operatorname{cosect} p$ (-- when the star is east of the meridian, otherwise +); and E, the final correction of declination from $E = \frac{D2 \sin 2p}{\sin 1''}$ always --. And having thus found the declination of the point of occultation, the difference between it, and that of the moon's centre is known; and from this difference, the moon's semidiameter, and the declinations of both objects. Mr. D. computes in the usual way the difference between the right ascension of the planet; and hence finds the right ascension of the moon's centre; from which, by interpolating in the Nautical Almanac, he finds the Greenwich time.

The business of the evening being concluded, Professor Amici (one of the associates of the Society), at the request of the President, obligingly permitted the inspection of several instruments of his invention and workmanship. The principal were, a new compound achromatic microscope, a reflecting circle on a new construction, and a prismatic reflecting sextant. The microscope is formed with three achromatic double object-glasses, applied separately, or in combination; their common axis is directed vertically downwards, and the refracted pencil is turned into a horizontal position by internal reflection at the base of a right angled prism, for the convenience of observation, and after passing along the axis of a tube about seven inches long, received on the eye-piece. The object is powerfully illuminated from below by the reflected light of an Argand lamp, or day-light, collected in the focus of a large concave mirror. Several objects were viewed, such as the feathers on the wing of a butterfly; the pollen of the mallow, &c. which were shown with the utmost distinctness and beauty with powers of 700 and 1500* (the latter as stated by

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* These powers, however extraordinary they may seem, are not exaggerated. The writer of this notice has since, more than once, witnessed, and taken part in, the determination of several of the powers of the microscope in question, under various combinations, in the presence of M. Amici himself, and several Gentlemen of the greatest experience in such trials; when the results for four combinations tried were respectively 200, 700, 1120, and 3159 (all for *linear* measure.) With the last enormous power, vision was still *tolerably* distinct, though necessarily very obscure; with all the others, admirably perfect.

Mr. A. to have been determined by himself in conjunction with M. Arago in Paris.)

The reflecting circle consists of two circles, of about six inches diameter, revolving one within the other, the outer of which carries the verniers, on which the divisions of the inner are read off to 20". To each of these circles, in a plane perpendicular to its own, and intersecting it in an exact diameter, is attached a long, narrow plane reflector, in breadth equal to half the object-glass of the telescope, and in length, nearly to a diameter of the circles, and so contrived as to lie wholly below the plane of the limb, or at the backs of the circles, and to have their edges almost in contact, and intersecting exactly in the prolongation of the common axis of both circles; by which means parallax is avoided, and the necessity of a reduction to the centre, when the angles between near objects is taken, obviated. The attachment of these reflectors to the circles, so as to preserve the requisite freedom of motion and stability of the centre work, is performed by a framework easier to imagine than to describe without a figure. The telescope is attached to the limb of the vernier circle (which is either held in the hand by a proper handle, or supported on a pillar and counterbalanced), Its object-glass is covered half by one of the reflectors and half by the other; and the images of two objects seen by reflection in each, being brought to coincide, it is manifest that the angle between the reflectors, (which is equal to half the angle subtended by the objects at the centre of the instrument) will be read off on the divided limb. The principal advantages offered by this construction are, the avoiding of parallax, and a power of measuring the same angle on four different parts of the limb (independent of the four readings of the verniers.)

The prismatic reflecting sextant is nearly on the same principle only that the internal reflection at the basis of right angled-glass prisms is here employed in the place of metallic or silvered glass mirrors. It has, we believe, been described in the *Correspondence Astronomique* of Baron Zach, for which reason it is unnecessary to give any further account of it here.

Irish Patents

GRANTED FROM FIRST JANUARY, TO FIRST JULY, 1827.

An Improvement or Improvements on Wheels for Carriages.—Theodore Jones.—8th January.

Certain Improvements in the construction of Wheels, designed for driving machinery, which are to be impelled by water or by wind.—John Oldham.—2nd April.

Improvements in Gas.—J. F. Daniel.—1st May.

A new apparatus on which to suspend Carriage Bodies.—Henry J. Lacey.—1st May.

Certain Improvements in Machinery, or Apparatus for preparing rovings, and for spinning, twisting, and winding fibrous substances.—Maurice De Iongh.—7th May.

Apparatus adapted to cool worts or must, previous to its being set to undergo the process of fermentation, and also for the purpose of condensing the steam arising from stills.—Dominick Pierre Deuvbrong.—7th May.

A method of manufacturing gas, fit for illuminating purposes from rosin, and producing a residuum from which spirits of turpentine, and pitch are extracted.—John Pollock.—2nd June.

Portable Bedsteads.—William Mallet.—21st May.

Certain Improvements on Engines or Machinery, to be actuated by steam.—Francis Halliday.—24th June.

An Improvement in the process of refining sugar.—Morton W. Laurence.—24th June.

New Patents Sealed, 1827.

To Edward Dodd, of Berwick street, Soho, in the county of Middlesex, musical instrument maker, for his invention of certain improvements on piano-fortes—25th July—6 months.

To Thomas Peck, of Saint John street, in the parish of Saint James Clerkenwell, in the county of Middlesex, engineer, for his invention of the construction of a new engine worked by steam, which he intends to denominate a revolving steam engine—1st August—6 months.

To William Parkinson, of Barton upon Humber, in the county of Lincoln, gentleman, and Samuel Crosley, of Cottage lane, City road, in the county of Middlesex, gas apparatus manufacturer, for their having found out an improved method of constructing and working an engine for producing power and motion—1st August—6 months.

To Joseph Maudslay, of Lambeth, in the county of Surry, engineer, for his invention of certain improvements on steam engines—1st August—4 months.

To Lionel Lukin, of Lewisham, in the county of Kent, esq. in consequence of communications made to him by by foreigners abroad, and discoveries made by himself, for certain improvements in the manufacture of collars for draught and carriage horses, and saddles for draught, carriage, and saddle horses—1st August—6 months.

To Eugine du Mesnil, of Soho square, in the county of Middlesex, esq. for his invention of an improvement or improvements on, or additions to stringed musical instruments—1st August—6 months.

To Anthony Scott, of Southwark Pottery, in the county of Durham, earthenware manufacturer, for his invention of an apparatus, for preventing the boilers of steam engines and other similar vessels of capacity becoming foul, and for cleaning such vessels when they become foul—4th August—2 months.

To Peter Burt, of Waterloo place, in the parish of St. Ann, Limehouse, in the county of Middlesex, mathematical instrument maker, in consequence of a communication made to him by a certain foreigner residing abroad, for an invention of an improved steam engine—4th August—6 months.

To John Underhill, of Parkfield Iron-works, near Wolverhampton, in the county of Stafford, iron master, for his invention of certain improvements in machinery or apparatus for passing boats and other floating bodies from a higher to a lower or a lower to a higher level, with little or no loss of water, and which improvements are also applicable to the raising or lowering of weights on land —13th August—6 months.

To Robert Dickinson, of Bridge street, Southwark, in the county of Surry, tin plate merchant, for his invention of an improved buoyant bed or mattrass—13th August —6 months.

To Thomas Breidenback, of Birmingham, in the county of Warwick, merchant, for his invention of certain improvements on bedsteads, and in making, manufacturing, or forming articles to be applied to, or used in various ways with bedsteads, from a material or materials hitherto unused for such purposes—13th August—6 months.

To William Alexis Jarrin, of New Bond street, in the county of Middlesex, Italian confectioner, for his invention of certain improvements in apparatus for cooling liquids—13th August—2 months.

To William Chapman, of the town and county of Newcastle-upon-Tyne, civil engineer, for his invention of a certain improvement or improvements in the construction of waggons that have to travel on rail-ways or tram-ways —14th August—2 months.

To Henry Pinkus, of Philadelphia, in the state of Pensylvania, in the United States of North America, but now resident at the Quadrant Hotel, Regent street, in the county of Middlesex, gentleman, for his having invented or found out an improved method or apparatus for generating gas, to be applied to lights and other purposes—15th August —6 months.

To William Spong, of Aylesford, in the county of Kent, gentleman, for an invention for diminishing friction in wheel carriages, water wheels, and other rotatory parts of machinery—15th August—6 months.

To Lemuel Wellman Wright, of Mansfield street, Borough road, in the county of Surry, engineer, for his having invented or found out certain improvements in the construction of cranes—17th August—6 months.

To Lemuel Wellman Wright, of Mansfield street, Borough road, in the county of Surry, engineer, for his having invented or found out certain improvements in machinery for cutting tobacco—21st August— 6 months.

METEOROLOGICAL JOURNAL ,FOR JULY AND AUGUST, 1827.

1827.	Thermo.		Barometer.		Wind.	Weather.
	Max	Min.	Morn.	Even.		
JULY						
28	80	65	30,—	30,02	N. W.—W.	Fair—clear
29	86	64	30,02	29,77	S. W.	Ditto—ditto
30	74	57	29,64	29,87	S.W.—N.W.	Ditto—ditto—high wind
31	72	58	30,02	30,01	N.W.	Ditto—cloudy
AUG.						
1	78	60	29,95	29,84	S. W.	Fair clear
2	80	60	29,76	29,60	S. W—S	Ditto—Cloudy
3	77	60	29,60	29,49	S.W.	Cloudy—showers—wind
4	72	59	29,49	29,73	W.—S. W.	Ditto—Ditto—Ditto
5	70	55	29,84	30,02	N.—N. E.	Ditto—rain .32
6	68	55	30,10	30,11	N. E.	Cloudy
7	74	51	30,11	30,01	E.—S. E.	Fair—Clear
8	72	52	29,98	29,89	E.—N.E.	Ditto—ditto
9	75	53	29,87	29,73	N.E—N—N.W.	Ditto—ditto
10	74	54	29,54	29,43	S. W—NW—W	Thunder—rain .06
11	68	55	29,45	29,44	SW—W.—N.W	Cloudy—slight showers
12	67	52	29,52	29,69	N. W.—N.	Ditto—ditto
13	68	55	29,78	29,57	NW—W—S W.	Ditto—rain } 25
14	72	58	29,52	29,34	S. W.	Ditto—ditto
15	70	58	29,22	29,28	S.W.—S.	Ditto—ditto 33
16	66	58	29,30	29,42	E. N.—E.	Ditto—ditto.13
17	68	55	29,49	29,74	N. E.—N.	Thunder and rain .75
18	62	54	29,81	29,84	E. N.—E.	Cloudy—slight showers
19	62	53	29,80	29,84	N. E.	Ditto—fair
20	64	53	29,84	29,83	N. W.	Cloudy—rain .06
21	68	53	29,88	29,93	NW—N.—N.E.	Ditto—slight shower
22	64	54	29,97	30,07	N.—N. E.	Ditto—damp
23	72	55	30,13	30,13	N.	Fair clear
24	64	54	30,05	29,92	N. —W. N.	Ditto—Cloudy
25	63	50	29,95	29,98	N.—W. N.	Cloudy—slight showers

HITCHIN, HERTS. WATSON PERKS.

D.	H.	M.	S.	
2	7	0	0	☽ in conj. with β in Capri.
3	13	0	0	☿ in conj. with ♂ long. 22° in Leo. ☿ lat. 43 N. ♂ lat. 1° 10′ N. diff. lat. 27′
5	0	0	0	☉ before the Clock 1′ 16″
5	0	0	0	♀ in conj. with ρ in Leo.
6	2	36	0	Ecliptic Opposition or ◉ Full Moon.
6	18	0	0	☿ in conj. with α in Leo.
7	1	0	0	♄ in conj. with ϑ in Virgo
7	13	0	0	☾ in conj. with ε in Pisces.
9	2	0	0	♂ in conj. with α in Leo
10	0	0	0	☉ before the Clock 2′ 57″
11	14	0	0	☾ in conj. with ε in Taurus
12	17	44	0	☾ in □ last quarter.
15	0	0	0	☉ before the Clock 4′ 41″
16	8	0	0	☿ in conj. with σ in Leo.
17	0	0	0	☾ in conj. with 1 α in Cancer
17	1	0	0	☾ in conj. with 2 α in Cancer
18	12	0	0	☿ in conj. with ♀ long. 17° in Virgo. ☿ lat. 1° 45 N. ♀ lat. 1° 25′ N. diff. lat. 20′
18	8	0	0	☾ in conj. with π in Leo.
19	7	0	0	♂ in conj. with ρ in Leo.
20	0	0	0	☉ before the Clock 6′ 26″
20	15	31	0	Ecliptic conj. or ● New Moon
20	18	0	0	☿ in conj. with β in Virgo.
21	17	0	0	♀ in conj with β in Virgo
22	10	0	0	☽ in conj. with α in Virgo
23	8	24	0	☉ enters Libra.
23	10	0	0	☽ in conj. with λ in Virgo.
23	23	0	0	☽ in conj. with 2 α in Libra
24	17	0	0	☽ in conj. with 4 ξ in Libra
25	0	0	0	☉ before the Clock 8′ 9″
25	4	0	0	☿ in conj. with η in Virgo
25	6	0	0	☽ in conj with 1 β in Scorpio
25	[illegible]	0	0	☽ in conj. with 2 β in Scorpio
25	9	0	0	☽ in conj. with γ in Scorpio
27	15	4	0	☽ in □ first quarter.
28	3	0	0	♀ in conj. with η in Virgo
29	14	0	0	☽ in conj. with β in Capri.
30	0	0	0	☉ before the Clock 9 49″

The waxing moon ☽—the waning moon ☾.

Rotherhithe. J. LEWTHWAITE.

METEOROLOGICAL JOURNAL FOR JULY AND AUGUST, 1827.

1827.	Thermo.		Barometer.		Rain in inches.
	Hig.	Low.	High.	Low.	
JULY					
26	72	45	29,99	29,80	,025
27	76	55	30,06	30,00	,2
28	81	60	30,08	stat.	
29	83	51	30,08	29,97	
30	75	62	29,93	29,70	
31	74	48	30,08	30,03	
AUG.					
1	73	47	30,06	29,90	
2	80	41	29,83	29 73	
3	74	52	29,69	29,66	
4	74	57	29,77	29,60	
5	69	56	30,06	29,95	
6	69	52	30,20	30,14	,025
7	72	43	30,24	30,20	
8	72	38	30,05	30,00	
9	72	43	29,94	29,80	
10	72	55	29,64	29,55	
JULY.					
11	69	47	29,55	29,53	,05
12	65	47	29,70	29,57	,2
13	68	42	29,80	29.74	
14	71	55	29,64	29,54	,175
15	70	59	29,31	29,30	
16	65	51	29,44	29,35	,025
17	67	50	29,75	29.64	,825
18	66	52	29,89	29,75	,1
19	66	50	29,90	29,89	
20	64	49	29,96	29,95	
21	71	56	29,99	stat.	
22	62	52	30,11	30,05	,1
23	72	51	30,20	stat.	
24	66	49	30,15	30,04	
25	60	48	30,06	29,98	

LOWER EDMONTON. CHARLES H. ADAMS.

Latitude 51° 37′ 2″ N. Longitude 3′ 51″ W. of Greenwich.

LITERARY AND SCIENTIFIC NOTICES.

Geology.—The new system of Geology, which has for many years engaged Dr. Hibbert, is now in a state of considerable forwardness, and may in a short time be expected to be published. This work is intended to contain a succinct view of the History of the Earth, a geological arrangement of the various mineral substances, with descriptions of their characters, and an account of the organic remains, that has been discovered in the various strata. A portion of the work is devoted to an inquiry into the changes, which are still going on with respect to altering the surface of the globe.

Dr. Hibbert is now upon the continent to collect facts previous to the completion of his work, with the view of satisfying himself on some questions relative to the formation of rocks of the igneous species.

For this purpose he has undertaken a personal examination of most of the volcanic districts of Europe.

Parts III and IV of the views of Hanoverian, and Saxon scenery, from the drawings of Captain Battye, have made their appearance, in the first will be found the gigantic rocks of the Rostrappe, one of the grandest scenes of the Harz Mountains engraved by Varrall, Karlshafen by Goodall, (very picturesque) and Neustadter Markt, by J. Redaway. Their is also one by R. Wallis, from the Pastey in Saxony, a very singular view, and another of the Thief Grund, a Saxon scene, which completes the part, the last will be found to contain views of St. Nicholas Hamburgh, the Oker Thun Bridge, & Bridge at Nienberg, Wernigerode, and Buckeberg, a curious piece of antiquity, all of which are executed in the same masterly style as were the former parts of this work.

Dr. Scully has in the press, observations on the climate of Torquay, and the southern parts of Devonshire, generally comprising an estimate of its value as a Remedial agent in pulmonary disorders and tabular abstracts of a series of Meteorological Journals kept in the south of Devon from 1807 to 1827.

Mr. Thomas Moule, the author of the Bibliotheca Heraldica, Neale's views of Seats, &c. &c. has announced a history of Domestic Architecture, with critical remarks on the distinctions, characteristic of various styles that have been adopted in the construction of the principal Mansions of this Kingdom.

Canal Navigation, &c.—A prospectus has just been issued for the production of a map, from actual survey to exhibit the Inland Navigation, Canals and Rail-Roads, together with the site of the various mineral productions of Great Britain upon a large scale.

The work is patronized by his Majesty, and a numerous list of the Nobility, and Gentry, &c. of the country have set their names down as subscribers.

Select Views in Greece.—The publication of this work by Mr. Williams, is rapidly proceeding, its ninth number being now before the public. It contains the following views: The Mountains of Locri, Ozolæ, Mount Olympus of mythological and classical renown. The fountain at Vostizza, (an extraordinary specimen of architecture) Mount Helicon, and Mount Cithæron from the tombs of Platæa. The part under consideration, is in every point of view equal to those that have preceeded it, and reflects the highest credit upon the Artists employed in its production.

Statue to the Duke of York.—The palm of competition for erecting a statue to the Duke of York, at the expense of the United Service Club, has been carried away by the model of Mr. T. Campbell, a distinguished sculptor of Scotland, who has been appointed to execute the figure in marble, at the cost of two thousand guineas, and it is anticipated from the known talent of the artist, that he will produce a noble representation of the lamented commander in chief of our armies.

SHACKELL, PRINTER, 2, BARTLETT'S PASSAGE, FETTER LANE, HOLBORN.

Williams's Hat. Making. Machinery.

Fig. 1.

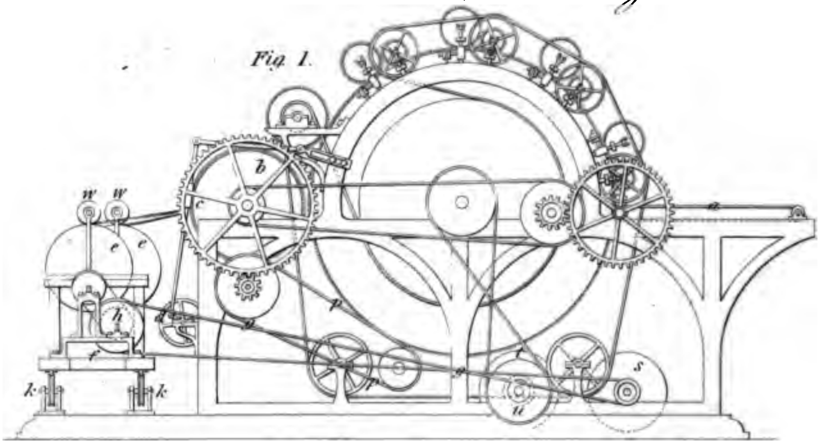


Fig. 2.

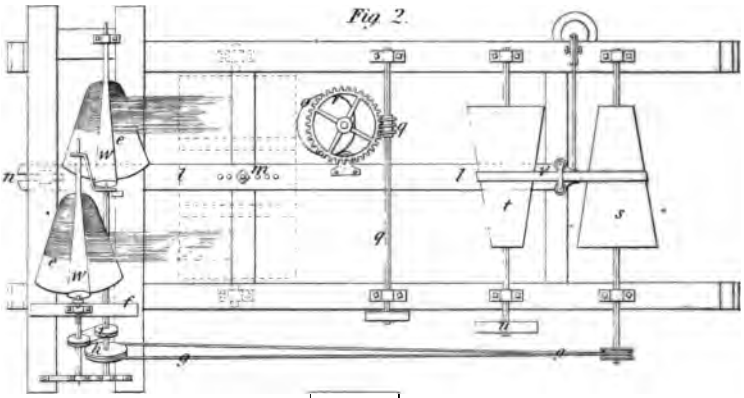
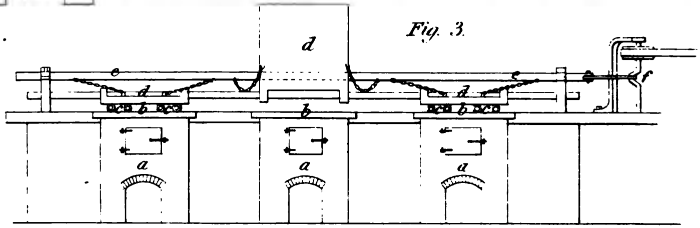


Fig. 3.



Stansfeld & Co.'s Improved Loom.

Fig. 6.

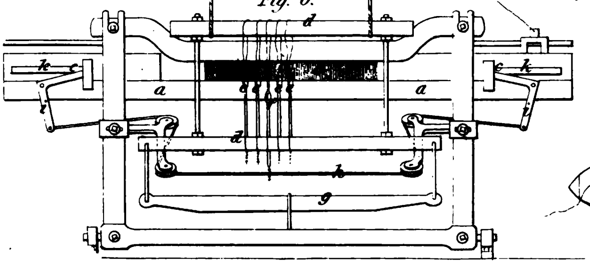


Fig. 5.

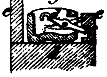
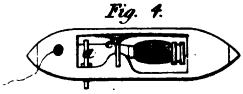


Fig. 4.



THE

London

JOURNAL OF ARTS AND SCIENCES.

No. LXXXIV.

Recent Patents.

To Thomas Robinson Williams, *of Norfolk Street, Strand, in the County of Middlesex, Gentleman, for his Invention or Discovery of an Improved Method of Manufacturing of Hats and Caps, with the assistance of Machinery.*

[Sealed 18th September, 1826.]

This invention is a method of making the felts or foundations of silk or other covered hats and caps by means of machinery; and consists first, of an apparatus to be attached to a carding engine, by means of which the slivers of wool are taken off the doffer cylinder, and wound in different directions, for the purpose of becoming matted together upon blocks of various figures suited to the form of the intended hat or cap; and secondly, in an apparatus having heated plates and rollers, upon which the matted caps are pressed and rolled for the purpose of hardening them previous to felting.

Plate III, fig. 1, is a side view of the carding engine, with the winding apparatus connected thereto, and fig. 2, is a horizontal or plan view of the lower part of the same, shewing the operative parts of the winding apparatus, as connected to the carding engine. The doffer cylinder is covered with fillets of wire cards, such as are usually employed in carding engines, and these fillets are divided into two, three, or more spaces extending round the periphery of the cylinder, the object of which division is to separate the sliver into two, three, or more breadths, which are to be conducted to, and wound upon distinct blocks, for making so many separate hats or caps.

The principal cylinder of the carding engine, is made to revolve by a rigger upon its axle, actuated by a band from any first mover as usual, and the subordinate rollers or cylinders belonging to the carding engine, are all turned by pullies, and bands, and gear, as in the ordinary construction.

The wool or other material is supplied to the feeding cloth *a*, and carried through the engine to the doffer cylinder *b*, as in other carding engines; the doffer comb *c*, is actuated by a revolving crank *d*, in the common way, and by means of it the slivers are taken from the doffer cylinder, and thence received on to the surfaces of the blocks *e, e*. These blocks, of which two only are shewn to prevent confusion, are mounted upon axles, supported by suitable bearings in a carriage *f, f*, and are made to revolve by means of a band *g*, leading from a pulley on the axle of a conical drum beneath. The band *g*, passes over a pulley *h*, affixed to the axle of one of the blocks, and another pulley *i*, upon the same axle, gives motion, by means of a band, to as many other blocks as are adapted to the machine.

As it is necessary in winding the slivers on to the blocks, to cross them in different directions, and also to pass the sliver over the hemispherical ends of the blocks, in order that the wool or other material may be uniformly spread over the surface in forming the cap or hood for the shell or foundation of the intended hat, the carriage *f*, with the blocks is made to traverse to and fro in lateral directions upon rollers *k, k*.

This alternating motion of the carriage is caused by a horizontal lever *l, l*, (seen in the horizontal view fig. 2,) moving upon a fulcruum pin at *m*, which lever is attached to the carriage at one extremity *n*, and at the other end has a weighted cord which draws the side of this lever against a cam wheel *o*. This cam is made to revolve by means of a band and pulley *p*, which turns the shaft and endless screw *q*, and this endless screw taking into a toothed wheel *r*, on the axle of the cam *o*, causes the cam to revolve, the periphery of which cam running against a friction roller on the side of the lever *l*, causes the lever to vibrate, and the carriage *f, f*, attached to it to traverse to and fro upon the rollers *k, k*, as described. By these means the slivers are laid in oblique directions, (varying as the carriage traverses,) over the surface of the blocks.

The blocks being conically formed, or of other irregular figures, it is necessary in order to wind the slivers with uniform tension, to vary their speed according to the diameter of that part of the block which is receiving the sliver. This is effected by giving different velocities to the pulley on the axle of the conical drum *s*, corresponding with *s*. There is a similar conical drum *t*, placed in a reverse position in the lower part of the frame, which is actuated by a band from any convenient part of the machine passing over a pulley *u*, upon the axle of *t*. From the drum *t*, to the drum *s*, there is a band *v*, which is made to slide along the drums by the guidance of two rollers at the end of the lever *l*.

It will now be seen that when the larger diameter of the cam wheel *o*, forces the lever outwards, the band *v*, will be guided on to the smaller part of the conical drum *t*, and the larger part of *s*, consequently, the drum *s*, will at this time receive its lowest motion, and the band *g*, will turn the blocks slower also; the reverse end of the lever *l*, having by the same movement, slidden the carriage into that position which causes the slivers to wind upon the larger diameter of the blocks.

When the smaller diameter of the cam is acting against the side of the lever, the weighted cord draws the end of the lever to the opposite side, and the band *v*, will be guided on to the larger part of the cord *t*, and the smaller part of the cone *s*; consequently, the quicker movement of the band *g*, will now cause the blocks *e*, *e*, to revolve with a corresponding speed. The carriage *f*, will also be moved upon its rollers *k*, *k*, to the reverse side, and the sliver of wool or other material, be now wound upon the smaller parts and ends of the blocks, at which time the quicker rotation of the block is required. It may be here observed, that the cam wheel *o*, should be differently formed according to the different shaped blocks employed, so as to produce the requisite movements of the lever and carriage suited thereto.

It only remains to state, that there are two heavy conical rollers *w*, *w*, bearing upon the peripheries of the blocks *e*, *e*, which turn loosely upon their axles by the friction of contact, for the purpose of pressing the slivers of wool or other material, on the blocks as it comes from the doffer cylinder of the carding engine, and when the blocks have been coated with a sufficient quantity of the sliver, the smaller end of the pressing rollers is to be raised, while the cap is withdrawn from the block. The process being continued as before, and the formations of other bodies or caps is effected in the manner above described.

An apparatus having a similar object, though different in its construction, became the subject of a patent some time back (see Borrodaile's Specification for an improved method of making hats, Vol. XI, page 353), and we have some reason to think that it was originally invented by the present patentee.

After the caps or bodies of hats, &c. are formed in the above described machine, they are folded in wet clothes, and placed upon heated plates, where they are rolled under pressure, for the purpose of being hardened. Fig. 3, represents the front of three furnaces *a, a, a,* the tops of which are covered with iron plates *b, b, b*. Upon these plates, which are heated by the furnace below, or by steam, the bodies wrapped in the wet cloths *c, c, c,* are placed, and pressed upon by the flaps or covers *d, d, d,* sliding upon guide rods, to which flaps a traversing motion is given, by means of chains attached to an alternating bar *e, e*. This bar is moved by a rotatory crank *f,* which has its motion by pulleys from any actuating power. When any one of the flaps is turned up to remove the bodies from beneath, the chains hang loosely, and the flap remains stationary.

These caps or hat bodies after having been hardened in the manner above described, may be felted in the usual way by hand, or they are felted in a fulling mill, by the usual process employed for milling cloths, except that the hat bodies are occasionally taken out of the fulling mill, and passed between rollers, for the purpose of rendering the felt more perfect.

The patentee says in conclusion—"Having described the whole of my apparatus, and the process by which I manufacture hats or caps, I wish it to be understood, that I do not claim any novelty in the construction of the carding engine, but I claim the following particulars as my invention, and the subject for which this patent was granted. First, the apparatus or machinery above described, as attached to a carding engine, for winding the slivers of wool or other materials on to blocks of any suitable figure calculated to form hats or caps of every shape; second, the apparatus for hardening the said bodies after they have been so formed; and, lastly, the felting of the same by means of a fulling mill."

[*Inrolled March,* 1827.]

To William Parr, *of Union Place, City Road, in the County of Middlesex, Gentleman, for his Invention of an Improvement or Improvements in the Mode of Propelling Vessels.*

[Sealed 27th August, 1825.]

The object of the patentee is to avoid the inconvenience experienced in the use of the ordinary paddle wheels employed for propelling vessels on water. The usual mode of constructing paddle wheels, is by fixing the paddle boards to arms standing in the position of radii, in which construction the paddles both on entering the water, and passing out of it, experience a resistance nearly in a perpendicular direction, which causes an unnecessary expenditure of power in driving the wheel, and also impedes the progress of the vessel.

The patentee proposes to mount the paddles upon axles by which they are enabled to turn over as the wheel goes round, and the improvement consists in fixing these paddles by means of locking bars moved by a cam, when the paddles come to the lower part of their revolution, that is into positions ready for action, and releasing them when rising out of the water, by a cam also.

Plate IV, fig. 10, represents one of the improved propelling wheels revolving upon an axle *a*, which turns in plummer boxes, supported by the rail *b*, *b*, extending from the side of the vessel; *c*, *c*, *c*, are the arms of the wheel, to the outer extremities of which the axles of the paddles *d*, *e*, *f*, *g*, *h*, *i*, are attached. These paddles are made rather heavier on one side of their axles than on the other, for the purpose of causing them to swing as they go round, in nearly perpendicular positions as at *f*, and *g*.

Each of the arms of the wheel carry a sliding bar *k*, *k*, *k*, having a hook or rebate at its inner extremity, which, when slidden outwards, takes hold of the edge of the paddle, and locks it fast to the arm of the wheel, as at *d*, and *e*.

The wheel turning in the direction of the arrow, causes the paddles when moving through the space from *d*, to *e*, to perform the most effective part of their propelling stroke, and when arrived at the position of *e*, to be unlocked, and allowed to swing freely. This unlocking of the paddle, is caused by a stud at the inner extremity of the sliding bar *k*, coming against the inclined plane or cam *l*, fixed on the under side of the rail *b*. As the arm rises from the position of *e*, the cam *l*, draws back the sliding bar, and consequently withdraws the rebate from the paddle, which is immediately enabled to face by its gravity into the position of *f*, and by these means, the paddle in its ascent, passes edgewise through the water without resistance.

The further rotation of the wheel carries the paddles round in the positions seen at *g*, *h*, *i*, and when each paddle arrives at *i*, a hook or projecting pin standing out from the side of the paddle, strikes against a friction roller *m*, which lays the paddle flat against the arm *c*, while the cam or inclined plain *n*, shoots the sliding bar *k*, outwards, and locks the paddle fast against the arm as it passes, ready to give the propelling stroke as at *d*.

As the paddles in the upper part of their rotation, hang loosely, and are enabled to swing, it may happen the wind may throw over the paddle as shewn by the dots at *z*, in which case the projecting pin at the back of the paddle will come against the cam *o*, the inclined plain of which will turn the paddle again into its right position ready to be locked to the arm in the way described.

When it is desired to back the vessel, that is, drive it stern foremost, the wheel must be turned in the opposite direction to the arrow, the paddles will then turn over and form their resistance by bearing against the side of the arm without being locked.

The wheel and its appendages are proposed to be made of iron, and to be actuated by a steam engine, through the agency of gear connected to the end of its axle, and the wheel or wheels constructed in this improved way may be attached to the sides or head or stern, of the vessel as may be thought most desirable.

[*Inrolled February,* 1826.]

To THOMAS WOLRICH STANSFELD, *Merchant,* WILLIAM PRITCHARD, *Civil Engineer, and* SAMUEL WILKINSON, *Merchant, all of Leeds, in the County of York, for their New Invented Improvements in Looms, and in Implements connected therewith.*

[Sealed 16th July, 1825.]

THE improvements comprehended under this patent are first, a small appendage to the shuttle by which, in the event of the weft thread breaking, the shuttle is arrested in its race, and the actions of the loom stopped: secondly, an apparatus attached to the back of the lay for the purpose also of stopping the shuttle when any of the warp-threads break.

There is a contrivance of some small appendages, applied to almost every power loom, by means of which, whenever the shuttle in passing along its race, fails to enter the shuttle-box at the end, that certain small levers or pins protrude forward, and prevent the lay from vibrating, which consequently stops the action of the loom. An apparatus of this sort is employed by the patentees, and though not claimed as the subject of their invention, is yet indispensably connected with the improvements proposed under this patent.

Plate III, fig. 4, represents the appearance of the top side of the shuttle, with the bobbin within, which supplies the weft thread. Fig. 5, is a section of the shuttle taken transversely, for the purpose of shewing the new contrivance by which the shuttle is prevented from entering the shuttle box when the weft thread breaks; *a,* is a small lever placed in a recess within the shuttle, and attached thereto by a pin near its centre, upon which it turns. At one end, which may be called the head of this lever, there is an eye formed through which the thread is intended to pass from the bobbin *b*, to the guide *c*, and the reverse end or point of this lever is made to protrude through a slot in the side of the shuttle. That end of the lever which has the eye, is rather the heaviest, and is kept up in the position shewn in fig. 5, by the tension of the thread passing from the bobbin *b*, to the guide *c*, but when the thread happens to break, its support being removed, the heavier end of the lever falls, and the point rises accordingly, as shewn by dots.

In the section fig. 5, *d*, is the bottom of the shuttle race, and *e*, *e*, are the sides of the shuttle box, placed at each end of the race; there is a small notch *f*, in one of the sides of the shuttle boxes, designed for the purpose of allowing the point of the lever to pass as the shuttle enters the box, but in the event of the thread breaking, the head of the lever falls, and the point then standing up strikes against the sides, and prevents the shuttle from entering into the box, consequently the actuating parts of the loom are thrown out of gear, and the loom is immediately stopped by the contrivance first mentioned, which is common to other power looms.

The second feature of the invention by which the loom is stopped, when any of the warp threads break is shewn at fig. 6, which represents a portion of the back of the loom with part of the lay, the shuttle race, and the harness; *a*, *a*, is the shuttle race; *b*, the reed; *c*, *c*, the shuttle boxes; *d*, *d*, the top and bottom rails of one of the headles to which a few only of the loops *e*, *e*, *e*, *f*, are attached, for the purpose of shewing the operations of the new contrivance.

The upper portions of the loops of the headles are made of cords or headle yarn as usual, but the lower portions of the loop are of wire, at the junctions between which are the eyes that carry the warp threads. When the headle is depressed by its treadle *g*, the lower rail *d*, draws down the wire loops, and with them the shed of warp passed through the eyes; the cords at the top at that time hanging in a relaxed state: and when the headle rises by the lifting of the upper rail *d*, the cords being drawn into tension lifts the shed of warp, the wire loops then hanging down loosely; the eyes are therefore supported between the upper and lower portions of the loops, by the tension of the warp threads.

In the event of any one of the warp threads breaking, the eye through which it passed will immediately fall, as *f*, and the lower part of the wire loop hang down considerably below the bottom rail *d*, of the headle. Now on the lay going back as it vibrates upon its pivots, a cord *h*, extended across the lay, will catch against the end of the loop *f*, and the wire be drawn out of its straight direction. This cord *h*, is passed over pullies mounted in brackets fastened to the legs of the lay, and the extremities of the cord are connected to levers *i*, *i*, consequently whenever the cord is drawn out of the straight line, the upper end of the lever *i*, will be raised, and this acting against a spring lever *k*, at the back of the shuttle box, will under those circumstances fix the spring lever, and prevent the shuttle from passing into the box.

It will now be perceived that by this contrivance when any one of the warp threads break, the loop will immediately fall as at *f*, and the cord *h* being drawn, the lever *i*, will stop the shuttle, and instantly throw the machinery of the loom out of gear, which suspends its action until the warp thread is mended.

] *Inrolled January*, 1826.]

To BENJAMIN NEWMARCH, *of Cheltenham, in the County of Gloucester, Esq., for his Invention of Improvements on Fire Arms.*

[Sealed 7th November, 1826.]

THESE improvements apply to such descriptions of fire arms as are discharged by means of detonating compositions on the principle of percussion, and consists first in a new kind of chamber designed to receive the priming, made of detonating materials, 2dly, in the construction and adaptation of the parts of the gun lock, which effect the blow to produce percussion; 3dly, a new mode of adapting a lock to pieces of artillery, and improvements in the construction of the lock; 4thly, a new mode of conducting the fire to the charge of powder within a cannon; and 5thly, the introduction of a steel pin as a false breech, which said several improvements are exhibited in the different figures refering thereto, shewn in Plate IV.

Fig. 3, is a cross section of the breech or back end of the gun barrel taken at the dotted lines A, A, in fig. 4, which is a longitudinal section of a fowling piece, exhibiting the improved mechanism of the gun lock. The chamber for receiving the priming shewn at *a*, fig. 3, is here made conical, but it may be of a prism form. *b*, is a cone which fits into the chamber *a*, for the purpose of enclosing the priming, and excluding the air and moisture.

The bottom of the chamber is open to the channel *c*, where the detonating composition is deposited, and in which the striking pin works. The cone *b*, turns upon a joint *d*, at the side of the barrel for the purpose of allowing the priming to be deposited in the chamber, and is acted upon by the spring *e*, behind, which holds it when open or shut. The same sort of conical priming chamber is applicable to other fire arms.

The discharge of the piece causes the cone to be thrown up, and the chamber being then open allows the vapour arising from the detonation to escape. The edge of the chamber *a*, is formed with a small elevated rim, and the cover of the base of the cone *b*, being made to over-lap when shut down, closes the chamber perfectly air, and water tight. The mechanism of the gun lock may be constructed upon any of the ordinary principles, as far as the hammer, which in this improved plan is peculiar in its construction. In fig. 4, *f*, is the hammer to which is attached the pin *g*, working in the bore or channel *c*, leading to the breech end of the charge. The pin is connected to the hammer by means of a small stud *i*, near the end of the pin which is let into a notch *h*, in the top of the hammer. This forms a sort of swivel joint, and the pin may be withdrawn by turning it a quarter round, so as to release the stud *i*, from the notch.

The priming being deposited in the conical chamber *a*, descends into the channel *c*, and when the hammer is let off by pulling the trigger as usual, the end of the pin strikes with great force against the detonating priming, and explodes it.

In order to prevent the vapour arising from the explosion from gaining access to the works of the lock, a cap piece *k*, affixed upon the pin *g*, containing an elastic washer, stops against the rim at the back end of the breech, and thereby prevents the passage of the vapour; the cap also, fits accurately the interior of the cylinder in which it works, and is thereby guided.

A variation in the construction of the hammer and pin, for discharging guns by means of percussion is shewn at fig. 5, which is a longitudinal section of a fowling-piece, the lock being at full cock. The striking pin in this construction is not attached to the hammer as in the former instance, but is intended to be struck at its end by the hammer which causes the percussion. The pin is shewn detached at *a*, in fig. 6, and also the helical spring *b*, that throws it back, and the nut *c*, which limits its action. In applying this loose pin to the touch-hole of the gun, as in fig. 5, the helical spring *b*, is first put upon the front end of the pin *a*, bearing against the shoulder, and then the pin being introduced into its socket as shewn, the cap *e*, is screwed up to its bearing, which prevents the pin from dropping out while the spring forces it back. The lock is then enabled to act upon the end of the pin *a*, by the hammer *d*, striking it as before said, and the curved piece or apron *e*, attached to the hammer, shields the internal works from the smoke or vapour.

Fig. 7, shews another arrangement of the mechanism of the lock in which the hammer and tumbler are in different forms to the preceeding. The main spring communicates its power to the hammer, by acting against the tail piece attached to the side of the tumbler, and the sear and trigger are in one piece as in common pistols.

Cannons have been in a few instances, discharged by locks both upon the flint and percussion principle, but the peculiarity of the present improvement consists in attaching the said locks to the cannon by a hinge joint as shewn in fig. 8.

It has frequently occurred in discharging such cannons that the locks have been blown off, to obviate which it is proposed to attach them by means of the hinge joint as at *a*, the lock is by this means allowed to rise upon its joint as shewn by dots, when the explosion takes place, which acts under it, and when placed in a situation for fireing, the lock is held down upon the cannon by a latch spring.

The jointed lock may be adapted to a cannon either at the top, the side, or the end. When attached at the end of a cannon, it may be connected as in fig. 9.

In order to conduct the fire from the priming which in this case is preferred to be a detonating cap placed upon the nipple *z*, a channel is formed through the nipple, and cone *y*, which conducts the fire to the back of the cartridge in the cannon, thereby superseding the use of the port fire or ordinary priming with gun powder.

The false breech proposed to be employed, is designed to prevent the bruising of the touch hole by the repeated blows of the pin, this is formed by the introduction of a steel screw or plug *l*, shewn in fig. 4. The necessary aperture being made, the steel screw or plug is fastened in, and the touch hole drilled through it. In the event of the hole becoming stopped by bruising, the plug may be removed, and another substituted in its place.

The patentee says " In the foregoing specification I have found it necessary to describe and represent parts of fire-arms which are not new, I therefore desire it may be understood that I do not intend to claim all these as constituting parts of my invention, but limit my claim to the following novelties :—1st, the construction of a priming chamber with its plug and cover, as above described ; 2d, the construction and mode of connecting to the hammer the pin which gives the blow to the detonating priming, and the mode of packing the cap for the purpose of excluding the vapour from the interior of the lock, and the application of the main spring to the tail piece of the tumbler as shewn ; 3d, the mode of attaching a gun lock to a cannon by means of a joint ; 4th, the mode of conducting the detonating fire to the charge of gun-powder through the plug as described; and, 5th, the employment of a steel pin or plug introduced into the breech of the gun by screwing or otherwise, for the purpose of forming a false breech or renewable mouth piece to the touch-hole."

[*Inrolled January,* 1827.]

To WILLIAM HURST, *Manufacturer, and* GEORGE BRADLEY, *Machine Maker, both of Leeds, in the County of York, for their Invention of certain Improvements in the Construction of Looms for Weaving Woollen Cloths.*

[Sealed 16th July, 1825.]

THERE are two objects proposed under this patent, the first is a new mode of working the pecker lever, by which the shuttle of a power loom is projected to and fro along its race; the second is a rotatory cam so formed as to cause the batten to strike two smart blows in beating up after every shoot; which is found to be particularly desirable in the weaving of woollen cloths.

Plate IV, fig. 1, is a front view of a power loom; *a,* is the main shaft, which being made to revolve by means of a steam engine or other first mover, puts all the other parts of the loom in action. Fig. 2, is a vertical section of the loom taken at right angles to fig. 1, by which the new parts will be more evidently seen; *b,* is a bent lever placed near the end of the loom, turning upon a fulcruum pivot at *c,* and *d,* is an arm attached to the main axle *a,*

Hirst's Impd. Loom.

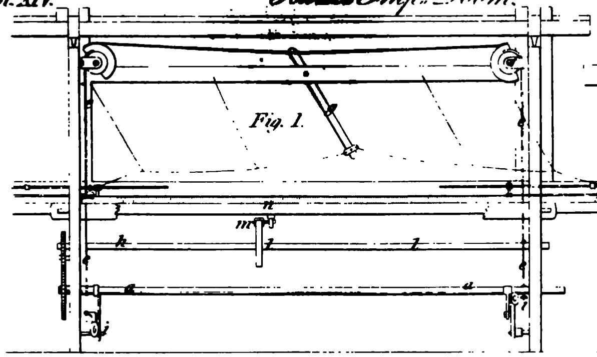


Fig. 1.

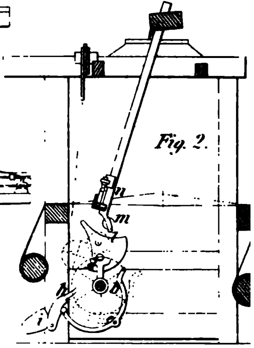


Fig. 2.

Newmarch's Impd. Fire Arms.

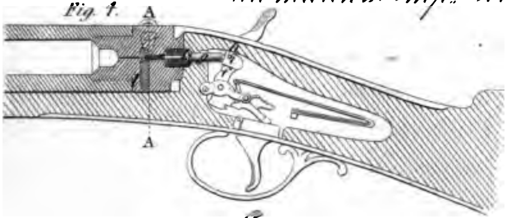


Fig. 4.

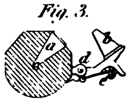


Fig. 3.

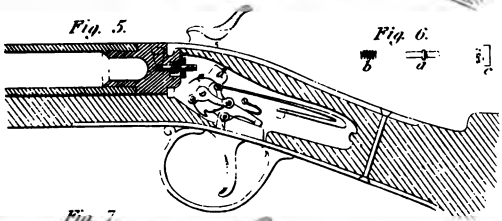


Fig. 5.

Fig. 6.

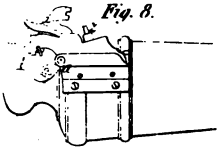


Fig. 8.

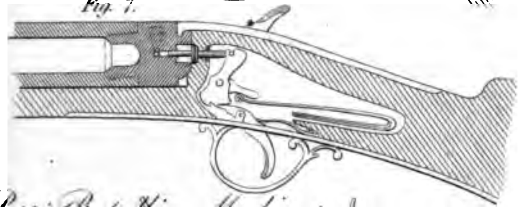


Fig. 7.

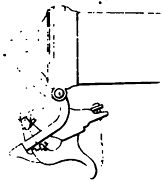


Fig. 9.

Parr's Propelling Machinery.

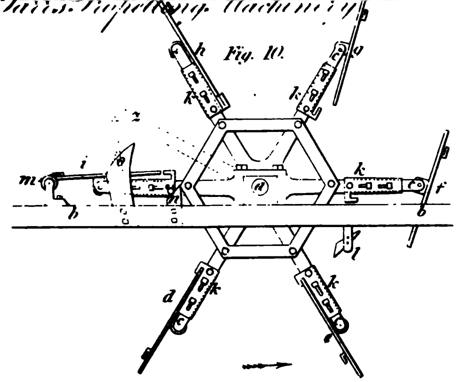


Fig. 10.

Millan & Ogle's Fulling

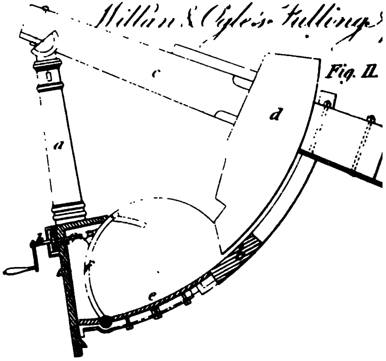


Fig. 11.

W. Newton del. 1st Oct. 1827.

likewise the nuts of similar rods jointed to the back of the curved plate *f*; by turning the central wheel, therefore which may be done by a winch, the other two wheels are turned also, and the curved plate moved backward or forward. At the upper part of the plate there are pins passing through curved slots which act as guides when the plate is moved.

The patentees state in conclusion, that steam has been employed before for heating cloths, while fulling them, they therefore do not exclusively claim its use, except in the particular way described, the advantages arising from the construction of iron stocks, with polished surfaces in place of wooden ones, together with the moveable curved plates described, are in their opinion "sufficiently important to constitute a patent right, according to the meaning of the statute made and provided for that purpose."

[*Inrolled February,* 1826.]

To JOEL LEAN, *of Fishpond House, near Bristol, being one of the People called Quakers, for his new Invented Machine, for effecting an Alternating Motion between Bodies revolving about a common centre or axis of motion. Also certain additional Machinery or Apparatus for applying the same to mechanical purposes.*

[Sealed 30th July, 1825.]

IT is stated in the commencement of this specification, that the invention consists of two parts; first, a plan of constructing machinery, by which any number of bodies are made alternately to approach each other, and again to recede, while they at the same time continue revolving about a common centre or axis of motion; secondly, in certain means of applying the said compound motion to mechanical purposes.

The patentee has exhibited a diagram as fig. 1, Plate V, in which *a, b, c, d,* and *a, e, f, g,* are two circles; let them be supposed to be toothed-wheels revolving upon their respective centres or axes *h, i*: and *k, l, m, n,* and *k, o, p, q,* are two eclipses, which may be supposed to be excentric wheels affixed to the same shafts as the circles, their axes being in their foci. Now if the circular wheels be made to revolve their teeth taken into each other, the eliptical or excentric wheels will revolve also, their peripheries being in contact with each other, during the whole of the revolution.

It is obvious that by this arrangement, the excentric or eliptical wheels during their rotation, will move with variable speeds, if put in motion by a uniform power applied to the axles of the concentric wheels; or if the concentric wheels are actuated by a uniform power applied to the periphery of the elipses, the peripheries of the concentric wheels will not turn with a uniform motion. These principles being admitted, it is unnecessary to enter into a calculation of the variable speeds resulting from different degrees of excentricity as the patentee has done, but it will be sufficient to state that the principles intended to be acted upon are, that rotatory motion being given to the one description of wheel, a reciprocating or alternating motion will be communicated to the other description of wheel, the adaptation of which to the working of certain machinery, constitutes the second head of the invention.

The patentee proposes to apply this kind of irregular motion to the opening and closing of valves for the working of steam engines, water, or air engines, but in what way, we do not exactly understand. If we have a correct view of the intended construction, it is, that the circles are to be considered as plates forming the ends of cylinders either of steam, water, or air engines, with apertures for the admission or emission of the fluid, and that these revolving uniformly, while the elipses, which are to be similar plates placed as covers above the circles, with corresponding apertures, revolve with variable speeds, the sides of the said apertures in the two plates will act as fans, approaching and receding from each other, and consequently closing and opening the valves or apertures alternately as the plates go round.

[*Inrolled March*, 1827.]

There are few persons, we should conceive, at all acquainted with mechanics, who have not seen these principles applied to machinery in a great variety of cases where an irregular movement has been required. EDITOR.

To THOMAS SHAW BRANDRETH, *of Liverpool, in the County of Lancaster, Esquire, Barrister at Law, for his new Invented or Improved mode of Constructing Wheel Carriages.*

[Sealed 8th November, 1825.]

THE carriages described in this specification, are such as are employed on rail roads, and the improvement consists in introducing sheaves, by way of anti-friction rollers

PLATE

Brandreth's Impd. Carriage.

Fig. 3.

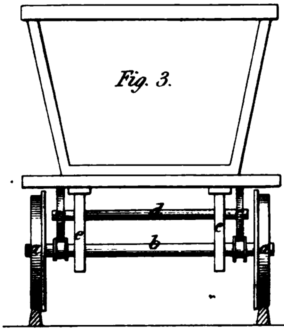
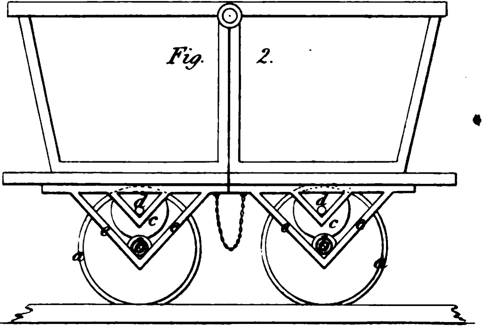


Fig. 2.



d's Apparatus for oying fire damp.

Halahan's Impd. Gun Carriage.

Fig. 5.

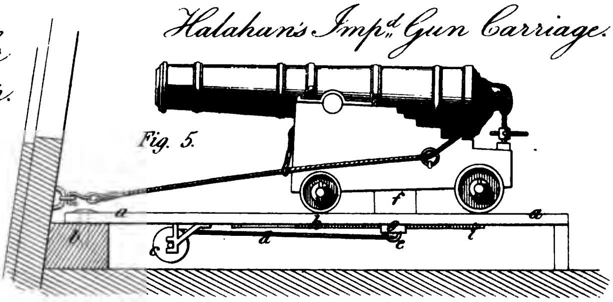
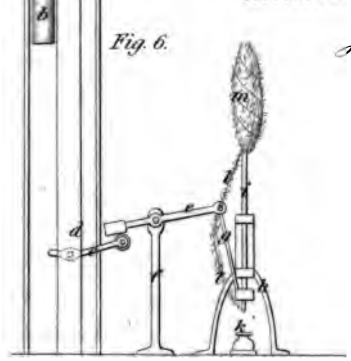
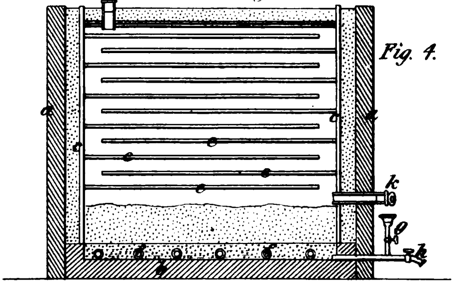


Fig. 6.



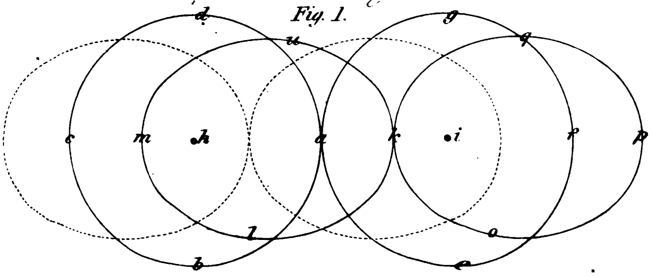
Ham's mode of making White Lead.

Fig. 4.



Lean's alternating motion.

Fig. 1.



n del.

1st Octr 1827.

between the underneath part of the bed of the carriage, and the axles of the running wheels.

Plate V, fig. 2, is a side view of a carriage with this improvement adapted thereto; fig. 3, is a back view of the same; *a, a*, are the ordinary wheels, running upon a rail way; *b*, is the axle of the running wheels; *c, c*, are anti-friction rollers, or sheaves as they are called, fixed to an auxilliary axle *d*, above; the peripheries of which sheaves run between flanges on the axle *b*, and bear against the under side of the bed of the carriage.

The axle *b*, turns in bushes as they are called, in the triangular bearings *e, e*, and the axle *d*, in similar bearings above. The object of the contrivance according to the statement of the patentees " to allow the wheels to yeild to the inequalities of the road," and he further observes that the " bushes above described produce various advantages. They prevent the axle from setting, in case of any spring or strain; they divide the circular and lateral friction, the former taking place in the inside, and the latter on the outside; they increase the length of bearings, and afford strength; they turn round occasionally, and present a new part to the wear; and they keep the oil in, and the dirt out."

In adopting this contrivance to the axle of the fore wheels of a carriage, only one sheave or antifriction roller is to be there employed; and that is to be placed in the middle, in order to allow for locking. The body of the carriage, which is here represented as a coal waggon, is made in two pieces joined together by a hinge at top, and bolted or otherwise fastened at bottom. When the carriage is brought over the hole or shoot, through which the coals or any other materials conveyed therein are to be deposited, the bolt at bottom being removed, the two parts open, and allow the contents to fall through. This mode of opening the bottom of the carriage, is not intended to be claimed by the patentee, though it is stated to have never been used before.

The above contrivances are said to be applicable to all railway, or tram carriages, and may with much advantage be applied to loco-motive carriages.

[*Inrolled May*, 1826.]

To **John Ham**, *late of West Coker, but now of Holton Street, Bristol, in the County of Gloucester, Vinegar Maker, for his Invention of an Improved Process for Promoting the Action of the Ascetic Acid on Metallic Bodies.*

[Sealed 13th June, 1826.]

The object of this invention is to produce white lead by an improved process. For this purpose a vessel is to be constructed as shewn in section, in Plate V, fig. 4; *a*, *a*, are the side walls of the vessel erected with brick, much in the same form as is usually employed for the making of white lead; *b*, is the floor, which is to be constructed by laying the bricks in Roman cement, in order to render the lower part of the vessel perfectly water tight; *c*, *c*, are the side plates between which and the walls, a quantity of refuse tanner's bark, or other suitable vegetable matter, is to be introduced. The same material is also to be put in the lower part of the vessel as at *d*, upon a false bottom or grating we presume, but that is not stated in the specification. This tanning is to rise up a considerable height, and upon it is to be placed a series of strips of sheet lead *e, e, e,* kept apart by blocks or by some other convenient means, with a space open at one end of the plates for the passage of vapour. Above the upper plate, boards are placed, and covered with the before mentioned refuse tanning material in order to keep the vapour from escaping.

In the lower part of the vessel, a steam pipe *f, f,* is coiled or twisted about in different directions for the purpose of giving heat, which may be supplied from any ordinary boiler, with a vent at the reverse end of the pipe to carry off the condensation; *g,* is a funnel and pipe to conduct vinegar or ascetic acid into the lower part of the vessel, and *h,* is a cock to draw it off when the operation is suspended.

Things being thus arranged, and the lower part of the vessel being filled with vinegar or ascetic acid through the funnel and pipe *g,* the heat of the steam as it circulates in the pipe *f,* causes the liquor to evaporate, which vapour passing upwards through the spent bark, comes in contact with the surface of the sheets of lead, and corrodes them.

The quantity of acid liquor to be introduced into the lower vessel must be just as much as will be sufficient when evaporated to corrode the surfaces of all the sheets of lead, and this may be ascertained by means of the small tube *i,* at top, which is intended for tasting as it is termed, that is, trying the acidity of the vapour. *k,* is a tube through which a thermometer may be occasionally introduced, to observe the temperature, as the heat of the vapour should not exceed 170° Fahr., and when the stopper of this tube is inserted, a small aperture of about half an inch should be left as an air vent. The spent bark surrounding the vessel is principally designed to prevent the heat passing off.

It is further proposed to combine with this process, the leading features of an invention, for which the said JOHN HAM obtained a patent for making vinegar, dated 7th October, 1824, see our Xth vol. page 363, wherein it is stated, that the liquor of which the vinegar is to be made must be separated into drops, for the purpose of exposing it as much as possible to the action of the atmosphere, and in doing this, it is run over extended surfaces, and then pumped on to bushes of birch or other twigs, where, falling from twig to twig, the liquor becomes greatly exposed to the air, and the acidification promoted. In the present instance, in place of the twigs of birch, shreads of lead are to be employed instead of the sheets above described, and the vapour of vinegar or ascetic acid being brought in contact with the metal, corrosion will take place, and white lead will be produced.

The patentee does not limit himself to any precise form of apparatus, but claims the general combination of parts upon the principle above explained, and particularly that the vinegar or ascetic acid may be heated without the employment of the earthen pans commonly used in this process.

[*Inrolled December,* 1826.]

To THOMAS HALAHAN, *of York-street, Dublin, Lieutenant in the Royal Navy, for his Invention of machinery or Apparatus for Working Ordnance.*

[Sealed 22nd June, 1826.]

THIS invention is the adaptation of a convolute spring in a barrel to a gun carriage, for the purpose of running the carriage out after loading. The barrel with the spring is proposed to be placed under the floor or platform on which the gun carriage traverses, and to be attached to the carriage by a rope; when by the recoil of the gun in fireing, the carriage will run back, and wind up the spring to tension, and the carriage being there held firmly by a catch, taking into a ratchet spring lever remains stationary while loading. On releasing the catch from the ratchet lever, the power of the convolute spring in the box exerts itself, and draws the rope, which runs the gun carriage out again.

Plate V, fig. 5, shews the manner of adapting the convolute spring to the gun carriage; *a, a,* is a platform raised above the deck for the purpose of supporting the gun carriage; *b,* is a pin passed through the end of the platform, into a fixed block, which forms a centre for the platform to turn round upon, when the gun is to be directed to the right or left. *c,* is the barrel containing the convolute spring, which turns upon its axle, supported in a secure bracket or hold fast; *d,* is a rope attached to the spring barrel, and being conducted along under the platform, is made fast to a staple *e,* beneath the gun carriage; *f,* is a piece projecting from the under part of the carriage which is intended to act as a guide, sliding in a slit or long opening in the platform, and to this piece *f,* a cross piece *g,* (into which the staple *e,* is driven,) is affixed, for the purpose of confining the traversing of the gun carriage.

When the piece is fired, the recoil sends it back into the situation represented in the figure, the branching rope having checked its retrograde movement; at the same time, the rope *d,* being drawn out, the convolute spring within the barrel *c,* will be wound up, and a catch on the side of the cross piece, taking into the ratchet-lever *h*, under the platform, the carriage will be held firmly.

After loading, the end of the lever *h*, at *i*, being drawn back, the catch on the side of the cross piece *g*, will be released, and the convolute spring at *c*, exerting its force winds the rope *d*, upon the barrel *c*, and draws the carriage forward, that is, runs it out.

[*Inrolled December*, 1826.]

It will be seen by reference to our XIIth Vol. page 122, and Plate VI, that this invention has been anticipated by Mr. Newmarch in his patent of 25th February, 1826, in the specification of which a convolute spring is placed in a box, on the axle of one of the running wheels or as it is there said, may be in any other convenient part, which spring being wound up to tension by the recoil of the gun, assists in stopping its retrograde movement, and being held by a ratchet and lever while loading, is then, on raising the lever, projected forward, that is, run out, by the power of the convolute spring. EDITOR.

To WILLIAM WOOD, *of Summer Hill Grove, in the County of Northumberland, Gentleman, for his Invention of an Apparatus for destroying the Inflammable Air, (which is commonly known by the name of Fire Damp) in Mines.*

[Sealed 22nd April, 1826.]

IN order to prevent the dreadful effects, which frequently attend the accidental ignition and explosion of inflammable air in mines, the patentee proposes to expose a naked flame in the mine at certain intervals of times, when the labourers are absent, for the purpose of exploding the air if it should happen to be inflammable, without doing any mischief. To effect this, an apparatus is to be employed connected to a common alarm clock, in which the descent of the alarm weight raises a lever, and this lever acting upon an instantaneous light apparatus, causes a train of inflammable matters to be set fire to, and instantly to ignite the gas in the mine, if there happens to be any.

Plate V, fig. 6, represents the apparatus to be employed; *a*, is an ordinary Dutch clock; *b*, is the alarum weight of that clock, *c*, is a lever turning upon a fulcruum in the standard *d*; *e*, is another lever supported by the standard *f*, the weighted end of which bears upon a roller at the extremity of the lever *c*. At end of *e*, a rod *g*, is attached by a joint, and at the lower part of this rod *g*, there is a small block *h*, attached also to the sliding rod *i*. At the under side of the block *h*, a match is placed coated with the preparation of potash, which takes fire when moistened by sulphuric acid. This match is intended to be dipped into a small bottle of sulphuric acid *k*, and when by that means ignited, the flame will pass from the match up a filament of cotton or flax *l*, forming a fuse to the bunch of cotton or flax *m*, placed at top of the rod *i*, both of which are to be previously dipped in turpentine, or some other highly inflammable material.

It being known at what hour the workmen quit the mine, the clock is to be set so that the alarm may go off in their absence, when the weight *b*, falling upon the end of the lever *d*, will depress it, and cause the roller at the reverse end to lift the shorter arm of the lever *e*. The longer arm of the lever *e*, falling by these means, the jointed rod *g*, will be made to conduct the block *h*, with the match down to the bottle *k*, and cause it to dip into the sulphuric acid.

As soon as the weight *b*, has passed the end of the lever *d*, that lever will assume its former position, and the weight at the end of the shorter arm of *e*, falling, will place all the parts again, as shewn in the figure; when the sulphuric acid upon the match igniting the flame, will pass as described along the fuse *l*, up to the bunch *m*, which will be immediately in a blaze, and set fire to the inflammable gas, if there should be any near it.

In order to conduct the flame to other parts of the mine, where the fire damp may happen to be, strings with strips of brown paper dipped in turpentine, or other inflammable matter, are to be suspended within reach of the fuse, and these taking fire will lead the flames to distant parts of the mine.

[*Inrolled October*, 1826.]

Novel Inventions.

New Invented Crane.

Mr. L. W. Wright, the patentee of the ingenious machinery for making pins described in our IXth volume, has just completed a crane for raising heavy bodies which is constructed upon very different principles to any crane that we have before heard of. It is without either wheel or pinion, and acts by an extremely simple adaptation of wedges and levers. There is one extraordinary property in this peculiar combination of mechanical powers which appears to shake the validity of an old established axiom, that "power can only be increased at the expence velocity," for this crane does actually raise heavy weights with less than half the power of the best constructed cranes heretofore used, and with the same or even greater velocity.

Mechanics have considered a certain general rule of power compared to velocity to be established, which if we are not mistaken, is, that *two men will raise* 600 *cwt· at the rate of ten feet per minute*, by any of the known simple combinations of wheel and pinion, or other mechanical powers; or, in other words, that one man will constantly exert a power equal to 35℔. during the hours of daily labour, which being multiplied by ten, the assumed power gained by the machinery, and allowing 1-7th for the friction, leaves about 300 cwt. per man; and in all cases where the machinery is so constructed as to increase the effect of the power exerted to raise the heavy body, the velocity, or space through which the heavy body moves, must accordingly diminish.

Several of these cranes have been lately erected at the West India Docks, and it has been proved that while two men raise, (as above said,) 600 cwt. at the rate of ten feet per minute by the ordinary cranes, two men with the improved crane, will raise more than 1500 cwt. through the same distance in a similar space of time.

The application of the mechanical principles on which this crane is constructed, is admitted, by all who have seen it, to be perfectly new, and its performance in every respect satisfactory. We are not at liberty to describe its construction at present, as the patents for Scotland, Ireland, and other countries are not yet complete, nor is the specification of the English patent yet inrolled; but as soon as the invention can safely be made public, we shall lay it before our readers.

Perkins's Steam Engine.

Mr. Perkins's engine, erected at St. Catherine's Dock has been occasionally at work, raising water, since our last notice, and as we are informed, with all the effect desired. Mr. P. has now erected at his new factory near Regent Square, Gray's Inn Road, a very complete engine, having two single stroke cylinders, connected together, both worked with high pressure steam.

The steam is admitted from the generator through a very small induction aperture, at the lower part of the first cylinder, (which is a small one,) at a pressure it is stated, of about one hundred atmospheres, and when the piston has been forced up, one eighth of its stroke, the induction aperture is closed. This volume of steam now expanding, drives the piston to the top of the cylinder, where an enlargement of the cylinder allows the steam to escape past the piston, and through a passage to the upper part of the larger cylinder connected to it, where acting with a diminished force, (say about ten atmospheres,) it drives the larger piston to the bottom of its cylinder, and there escapes.

The two piston rods being connected together, and the steam entering the two cylinders at opposite ends, the two pistons mutually assist each other in their ascent and descent, that is, the ascent of the smaller piston lifts the larger one, and then the steam of diminished force acting alike on the top of both pistons, forces them down; the induction aperture being now opened again, a volume of steam is admitted as before, and thus the engine is continued in action, without any re-action of either of the pistons.

The specification of the last improvements having been inrolled within a few days only, we have not been able to prepare the plates and description, but intend at a very early period, to lay the subject fully before our readers.

On the Preparation of a Cheap and Durable Cement.

By M. LASSAIGNE.

THE writer observes that the cement or plaster commonly used in France, (which consists of a mixture of chalk, and strong size) is objectionable as being deficient in hardness, apt to chip or scale off, and unable to resist the rain. He proceeds to state that a composition formed of slacked lime, mixed with 4 to 5-100 parts of alum, though dearer than the former, has been found preferable on account of its adhering more firmly to the wall, and better calculated to resist the inclemencies of the weather, which he conceives is owing to the alumine of the alum becoming incorporated with the lime.

Following the advice of M. Dulong, he has endeavoured to imitate this cement on a more economical principle. To effect this, he has diluted slacked lime, and white clay with water, and after mixing, suffered them to blend together, and re-act upon each other for some time at an ordinary degree of temperature. The proportions of the separate ingredients are 100 parts of quick lime, five of white clay, and two of yellow-ochre. The process is as follows:

The lime is first slacked with a small quantity of water, more of which is added by degrees until the mixture is reduced to about the consistency of cream, the white clay is also diluted, and brought to a similar state, by being suffered to remain for some time in water, and the two solutions are then mixed carefully together.

This mixture is suffered to remain in casks or tubs for about twenty-four hours, care being taken to stir it from time to time. After the expiration of this period the yellow-ochre is added as a colouring, and it is then fit for use.

The parts of walls covered with this cement, which have been exposed in the country, to the influence of the south west winds, and rain, for the space of two years, have lost none of their colour, nor can any portion of the plaster be rubbed off by the hands.—*Bull des Sciences.*

New mode of Copying Oil Paintings, by means of Lithography.

M. Senefelder of Munich, the well known lithographic artist, has invented a new process of printing coloured designs, so as perfectly to resemble oil paintings. The plate from which the impression is taken, resembles a species of mosaick, composed of different colours in a soft state. The basis of these colours consists of wax and oil, which are probably rendered soluble by means of caustic potash. To obtain 100 copies, it is necessary that this stratum of colours should be at least a line in thickness, for a thousand one inch, and for any other number in proportion.

The inventor assures us that the composition of the plate does not occupy more time than a common oil painting on canvass. No particular talent is requisite for the drawing. The process of the impression is also attended with but little difficulty. The paper, after being moistened is laid upon the plate, and by means of a slight pressure, a most beautiful copy is obtained, which is then carefully spread out upon canvass covered with a strong drying varnish. The picture is afterwards washed over with alum water, in order to render its colours as durable as those of paintings in oil. *Bull. des Sciences.*

Portable Steam Baths.

MEDICAL applications of steam baths, aromatic, sulphureous, or simple vapours, are of great efficiency for many disorders. A French physician has materially simplified a *portable* apparatus, wherewith he administers those steam baths in the patient's own bed chamber. No incumbrance attends the carrying and employing the apparatus, and the price of a steam bath is so moderate that its application may suit every condition either rich or poor. The French infirmaries, and even public baths prefer the *portable* apparatus to the established old system. C. A.

Process of Bronzing Statues, Medals, &c.

THE different means hitherto made use of for communicating to newly cast bronze the colour which gives it a resemblance to the antique, vary considerably from each other. The following is the process employed by M. Jacob, one of the most skilful artists of this capital, (Paris.)

Take two drachms of sal-ammoniac, half a drachm of salt of sorrel, and dissolve them in half a pint of white vinegar; after having well cleaned the metal from verdigrease, moisten a brush by dipping it softly into this solution, then rub it continually on the same place till the colour becomes dry, and assumes the tone or depth of shade desired. In order that the drying may be more rapid, this operation is to be performed in the sunshine, or by the heat of a stove. The oftener it is repeated on the same place, the deeper proportionably will be the colour of the bronze. *Journ. des Connaiss. Utiles.*

Improvement in the Manufactory of Paper, by M. Batillat.

M. Batillat, a chemist at Macon, has conceived the idea of employing in the manufactory of paper, a substance of a shining whiteness, which he says, may be easily prepared in large quantities, and at so little expence, that it would cost only one-fourth the price of the pulp now employed for paper making, into which it may be introduced in the proportion of ten per cent. This substance renders still whiter the very finest pulp, mixes with it exceedingly well, and causes the paper to become almost incombustible, insomuch that though a part is exposed to the flame and burnt, the fire is not communicated to the remainder. *Journal de Saône et Loire.*

Method of Preparing Spruce Beer.

This beer is well known to the Americans, and to most sailors, it is said to be a very wholesome stomachic and duvietic, the mode of preparing it, is as follows.

The young branches of the pine, or fir tree are cut off early in the spring, to the length of three or four inches. They are then cut into small pieces, and boiled in water, and after filtering the extract through a sieve, sugar is added to it in the proportion of about 6lbs. to an anker. (16 gallons.) It is finally reduced by boiling into a syrup in which state it may be preserved a long time in bottles.

To convert this extract into beer, three pints of it are mixed with thirty of water, it is then boiled for about two hours, and when cold, put into a wine or other cask, (a fresh emptied wine cask is best) and fermented in the usual manner. *Bull. des Sciences.*

Polytechnic and Scientific Intelligence.

ROYAL SOCIETY.

(Continued from Vol. XIII, page 232.)

March 8.—The Vice President read a letter from Mr. Runiker, of Parramatta, New South Wales, announcing his discovery of a comet in September last.

The reading of Dr. Granville's paper on two liquids lately proposed as powerful disinfectants, and their action on putrid matter, was concluded. Some years back M. Labarrique, of Paris, employed chlorine in a liquid form, for the purification of air in which putrid matter had been placed, and for stopping putridity in dead bodies; for which purpose he used a solution of oxymuriate of lime, and a solution of carbonate of soda saturated with chlorine gas. Subsequently very little attention has been paid to the nature of the compounds, or the theories of their chemical actions, until Dr. Granville having occasion to employ one of the liquors extensively, analysed it for the purpose of ascertaining the characters of its constituent parts, and the rationali of its effects on animal matter. The analysis proved the fluid to contain 73.53 dry chloride of sodium, and 26.47 neutral chlorate of soda, with an excess of chlorine equal to twice the bulk of the water, and finding that no such composition as the chloride of oxide of sodium existed in it as was formerly supposed, recommends the liquid to be called *Disinfecting liquid of Soda.* The singular properties of the liquid, appear to be entirely owing to the chloride, and not to the salt, the same effects being obtained when a simple solution of chlorine in water is employed. Dr G. intends presenting to the Society further particulars, and the results of subsequent researches upon this interesting subject, which will of course appear in their transactions.

A paper by W. Ritchie, A.M. was also read on the permability of transparent screens of extreme tenuity by radiant heat, in which paper he asserts that he has proved by experiment, that the rays of heat emitted from bodies of high temperatures do really pass through glass, and other transparent screens, and that the effect does not arise from secondary radiation from the screen, as some philosophers maintain.

March 15.—Capt. G. Everest, conductor of the trigonometrical survey in India, was admitted a fellow of the Society. A paper was read on correcting an error in the reduction of the observations for atmospherical refraction at Port Bowen, by Lieut. H. Foster, R.N. F.R.S. The reading of another paper was also commenced on experiments for determining the mean density of the earth, made with two invariable pendulums, at the mine of Dolcoath, in Cornwall, by Mr. Whewell, and Professor Airey, of Cambridge, which paper was concluded on 22d March. The experiments were made with two invariable pendulums, one oscillating at the surface of the earth, the other at the depth of 1220 feet. The difference between the two was $8''23$.

In reasoning upon the results, the author concludes that it would require a mean density of the earth equal to 773 times that of the superficial stratum, or about twenty times that of water, to produce so great a difference; but the experiments having been interrupted by the accidental breaking of one of the pendulums, the results are considered as not to be confided in, and the experiments are to be resumed shortly. In an appendix, Professor Airey gives the formulæ of computation used, and their application to the observed causes.

March 29.—Viscount Mahon, and the Rev. C. Mays, were respectively admitted fellow of the Society. A paper was read on the compound of chrourium, by Dr. Thomas Thomson, F.R.S. which was concluded on April 5.

THE ROYAL SOCIETY OF EDINBURGH.

January 4, 1827.—Captain Basil Hall read a Notice on the trade winds.

January 23.—A paper by the Rev. William Scoresby was read, entitled " A description of some remarkable effects of unequal refraction observed at Bridlington Quay in the Summer of 1826."

At the same meeting there was read, a " Sketch of the manners and customs of the Eboe Nations," by John Reddie, Esq. LL. D.

February 5.—A paper by P. F. Tytler, Esq. was read, " On the earliest introduction of the Greek Language and Literature into England after the dark Ages.

On the same Evening was presented to the Museum of the Society, by George Swinton, Esq. of Calcutta, the snout of the saw fish. This is one of the largest and finest specimens that has been seen.

The same Gentleman also presented to the Society, the skeleton of a Boa Constrictor, *sixteen feet long*, accompanied by one of the brood preserved in spirits. Mr. Swinton likewise presented various snakes from Arracan and Sumatra.

February 19.—A paper by John James Audubon, Esq. entitled Notes on the habits of the Wild Pigeon of America, *Columba migratoria.*

There was presented by Sir Thomas Makdougall Brisbane, K. C. B. to the Museum of the Society various interesting objects of Natural History from New South

Wales, and various specimens of the cloth, ropes, &c. &c. of the Natives.

March 5.—A paper by Thomas Allan, Esq. entitled "Notice respecting the tusk of a Mastodon, with some bones and fossils found in Woodhill Quarry, near Kilmarnock."

Mr. Allan presented this tusk and the other fossils to the Museum of the Society.

At the same meeting, a paper was read by Dr. Brewster, entitled "Report on the hourly Meteorological Register kept at Leith Fort during the year 1826."

March 19.—PROFESSOR DUNBAR read an inquiry into the structure of Greek, Latin and Sanskrit verbs, with some observations to shew that the latter are derived from the former.

April 2.—Sir William Hamilton read an essay "on Phrenology considered in its constitution."

April 16.—A paper was read, "on a new combustible gas," by Thomas Thomson, M.D. Professor of Chemistry, Glasgow.

This gas was obtained from *pyroxylic spirit*, formed by the distillation of wood, and manufactured by Messrs. Turnbull and Ramsey of Glasgow. Pyroxylic spirit has a specific gravity of 0.812, and an agreeable smell, and is used in lamps in place of alcohol. Dr. Thomson found that the gas extricated from a mixture of aqua regia, and pyroxylic spirit consisted of

New inflammable gas - - - -	29
Nitrous gas - - - - - - -	63
Azotic - - - - - - - - -	8
	100

the specific gravity being 1.945, that of air being 1. The specific gravity of the new gas was 4.1757, and it was composed as follows:

1 Atom hydrogen - - - - -	0.125
1 Atom carbon - - - - -	0.750
1½ Atom chloride - - - - - -	6.750
	7.625

and its atomic weight is 7.625. Hence Dr. Tomson calls it the *Sesqui-chloride of Carbo-hydrogen*

On the same evening there was read another paper by Dr. Thomson, entitled *Same Experiments on Gold.* The object of this paper was to determine whether the peroxide of gold contained *two* or *three*, atoms of oxygen. The evidence from the analysis of Berzelius and Javal was in favour of *three* and hence chymists had considered the peroxide of gold as a *teroxide.* This result is confirmed by Dr Thomson who finds that peroxide of gold is composed of

1 Atom of gold - - - - - -	25
3 Atoms of oxygen - - - - - -	3
	28

In this paper Dr. Thomson also determines that *muriate of gold* consists of

2 Atoms muriatic acid - - - - -	9.250
1 Atom peroxide of gold - - - -	28.
5 Atoms water - - - - - -	5.625
	42.875

Dr. Thomson then proceeds to show, in opposition the views of Berzelius, that the permuriate of tin, like the muriate of gold, is more probably a muriate than a chloride.

On the same day a paper was read " On the gradual changes which take place in the interior of minerals, while the external form remains the same," by William Haidinger, esq.

May 7. Professor Wallace read a paper on the quadrature of the conic sections, and the calculation of logarithms.

A paper was also read by Dr. Brewster, on the theory and construction of polyzonal lenses, and their combination with mirrors, for the purposes of illumination in light houses.

The following papers were communicated to the Society:

1. Observations on the structure of the fruit in the order Cucurbitaceæ, by Francis Hamilton, M. D. F. R. S. London and Edinburgh.

2. Account of *Oxhäverite, a new mineral* from Oxhaver in Iceland, by Dr Brewster.

3. Analysis of *Oxhaverite*, by Dr Edward Turner.

The Society adjourned till November.

Brewster's Edin. Jour.

Society for Promoting the Useful Arts in Scotland.

Jan. 9, 1827.—Mr. Brown exhibited and explained to the Society his *New Weighing Machine.*

Mr. Johnson exhibited an *Air Gun* of a new construction.

Jan. 24.—Mr. Johnson read an account of a machine for *navigating the air.*

Mr. James Nasmyth, gave an account of a method of preventing the water in steam boilers from becoming too high or too low.

Mr. Nimro gave a description of a *High Pressure Engine* with a valve on a new construction. The engine was exhibited in operation.

There was read an account of an improvement on Mr. Adam's Nautical eye-tube, by Dr. Brewster. Mr. Adam's eye-tube was exhibited to the Society.

Mr. James Nasmyth described a method of checking accelerated velocities by the Conical Pendulum.

There were exhibited to the Society various specimens of the workmanship of the Russians in leather in the possession of Dr. Rogerson of Dumcrieff.

Feb. 20.—Mr. John Robinson read an account of the *Failure of the Suspension Bridge at Paris.*

Mr. Robinson exhibited a cock used in the south of France for drawing off wines and acid liquors.

There was read a *Botanical Survey* of part of the County of Aberdeen, by Mr. Alex. Murray, A.M. Surgeon, Alford.

March 6.—Messrs. George and James Nasmyth, exhibited a model of a *Loco-motive Steam Carriage* in operation.

There was read a description of the *New Safety Gas Burner,* by Mr. Warden, Engineer to the Portable Gas Company.

The burner was exhibited in the operation to the Society.

The *Buccleugh Lamp* was exhibited, in which oil is burned in capillary tubes without wicks.

March 26.—There was read a letter from David Gordon, esq. to Dr. Brewster, on a remarkable decomposition of oil gas.

Mr. Sivewright exhibited a new species of file, formed by the separated surfaces of chalcedony.

The model of a new gate, by Mr John Currer, was exhibited and described. This gate opened and shut by the action of the carriage that approached or quitted it.

A model of a machine for lifting and letting down weights, by Mr John Currer, was exhibited and described.

April 3.—Mr J. A. Ventress exibited and described a stereometer on a new construction, for measuring the specific gravity of powders as well as solid bodies.

Mr. Lizars read a notice on preventing forgery in bank notes, and exhibited specimens of notes executed by himself.

Dr. Brewster communicated a notice respecting the theory of Barker's mill, by Davies Gilbert, esq. M.P. V.P. R.S. who undertook the investigation, in consequence of that society having offered a premium on the best set of experiments on that machine.

Sir Samuel Stirling, Bart. exhibited and described the model of a cart in which the driver assists the horse, in steep ascents, by a piece of mechanism.

Mr. Colin Maclenan exhibited and explained the model of a horse to be put in progressive motion by its rider.

There was exhibited a very ingenious revolving protracting table, for laying down surveys, and also a portable levelling rod, invented by Mr. Buchanan, civil-engineer.

April 17.—A memoir was read of the life of M. Fraunhofer, an honorary member of the society, by Dr Brewster.

Mr. Claud Russell exhibited and described a hydrostatic lamp, which he had used for many years.

Mr. Monteath of Closeburn, exhibited a model of a machine for polishing stone pavement, erected at Closeburn.

The room was lighted by a gas lamp, suspended by the patent gas chain made by Messrs. Swan and Neill; Mr Simpson the patentee, described the chain to the society.

May 8.—A dissertation was read on the natural history of the herring, considered in connexion with its resort to the Scottish coast, by Mr. John Mitchell Junior, Leith, being one of the essays sent in competition for the honorary medal offered by the society.

A method of making a cheap soda liquid without crystallizing, for the use of turkey-red dyers, by Mr. Charles Cameron, Glasgow, was also read.

There was likewise read an account of a process for making screwed tools and screwed work, by Mr. Alexander Nicol, Monikie.

Distribution of Medals.

May 26.—At a general meeting held this day, the following medals were delivered by Lord Newton, viz.

1. The gold medal to Mr Whitelaw, for his improved clock.

2. A gold medal to Professor Wallace, for his eidograph.

3. A silver medal to Mr Shiells, for his triangle for directing the jets of fire engines.

4. A silver medal to Mr. William Warden, for his safety gas burner.

5. A silver medal to Mr John Mitchell Junior, Leith, for his paper on the natural history of the herring.

Scotch Patents

GRANTED SINCE JANUARY 15, 1827.

Jan. 15. For an Improved Winding Machine. To Henry Richardson Fanshawe, London.

Jan. 15. For certain improvements in the Machines used for carding, slubbing, slivering, roving, or spinning wool, cotton, waste silk, short staples, hemp, and flax, or any other fibrous materials, or mixtures thereof. To Moses Poole, County of Middlesex.

Feb. 2. For certain Improvements in the Manufacture of Gas for the purposes of Illumination. To John Frederick Daniell, Esq. County of Middlesex.

Feb. 2. For certain Improvements in Machinery or Apparatus for preparing rovings, and for spinning, twisting, and winding fibrous substances. To Maurice de Iongh.

Feb. 7. For a new method of constructing steam boilers. To James Fraser, London.

Feb. 13. For certain Improvements in Air Engines, for the moving of Machinery. To the Rev. Robert Stirling, County of Ayr.

Feb. 16. For an Improved method of constructing Capstans and Windlasses. To James Fraser, London.

Feb. 24. For certain Improvements in Machinery, for heckling or dressing, and for breaking, scutching, or cleaning hemp, flax, or other fibrous substances. To Robert Busk, and William King Westley, County of York.

March 21. For certain Improvements in Machinery or Apparatus for Printing Calicoes and other Fabrics. To Matthew Bush, of Dalmonach Printfield, near Bonhill, in the neighbourhood of Dunbarton, North Britain.

March 30. For an Improvement in the process of Refining Sugar. To Morton William Lawrence, County of Middlesex.

March 30. For a new invention of an Engine, for moving and propelling Ships, Boats, Carriages, Mills, and machinery of every kind. To William Wilmot Hall, of the city of Baltimore, United States of America.

April 2. For certain Improvements in the construction of wheels designed for driving machinery, which are to be impelled by water or by wind, and which said improvements are also applicable to propelling boats and other vessels. To John Oldham, Dublin.

April 3. For the construction of a new Engine for giving motion by the expansive power of the vapour of liquids. To Thomas Howard, of New Broad Street, London.

May 7. For an Improvement or improvements on power looms for weaving cloth of different kinds. To John Paterson Reid' Glasgow.

May 7. For an Invention of certain Improvements in the boilers used for making Salt, commonly called Salt Pans, and in the mode of applying heat to the brine. To Joseph Tilt, of Prospect Place, County of Surrey.

May 21. For the Invention of a new method of constructing gasometers, or machines or apparatus for holding and distributing gas. To Charles Barwell Coles, Esq. and William Nicholson, Manchester.

June 8. For certain Improvements in manufacturing carpets. To Thomas Clarke, County of Leicester.

French Patents

GRANTED BY THE FRENCH GOVERNMENT, FROM THE FIRST OF APRIL, TO THE 30TH OF JUNE, 1827.

To Messrs. Barthelemi Galimer, Son, of Cannes, distiller, and Michel Espinas, of Beziers, coffee house keeper, for a moveable apparatus for distilling wines and other liquors. 10 years.

— Messrs. Dollfus, Mieg and Co. of Mulhausen, oil cloth manufacturers, for a machine for printing several colours, and shades upon stuffs at the same time. 5 years.

— Louis Joseph Pouiltot, and Daughter, pewter manufacturers, of Paris, for a pencil case with inkhorn, brass pens and sand box. 5 years.

— M. Ancelle, shoemaker, Paris, for an elastic clog, or socque mobile. 5 years.

— Messrs. de Renneville, and Lemoine Desmares, for a new method of bleaching and washing wool. 10 years.

— Jean Louis Boucarut, painter and gilder, Paris, for improvements in pannel painting. 10 years.

— Messrs. Koechlin, and Zimmermann, builders, of Kaisersberg, for a stretching board for cotton spinning. 5 years.

— Messrs. Favreau, Paris, for an instrument which may be used as a pencil case and inkstand, by means of a small forcing pump. 5 years.

— M. Havard, pump manufacturer, Paris, for an apparatus adapted to the seats of water closets. 10 years.

— Louis Roth, Paris, for a new method of distilling, with other improvements. 10 years.

— Zavier Andoyer, writing master, Paris, for the invention of a new system of writing called the American, or the art of learning to write in a few lessons. 5 years.

— Mathurim Cosson, billiard table maker, for new invented pockets for billiard tables. 5 years.

— Messrs. Alexis Orry, Honore Mery, and Claude Simon de Cormeille, engineers, Paris, for an apparatus, called a fumi-comburateur, for consuming smoke, and its noxious particles. 10 years.

— Jean Baptiste Thomas Jamain, of Charleville, tinman, for a pump, with four valves, for raising water from the deepest well to the upper stories of houses. 5 years.

— Joseph Claude Heyraud, Paris, for a method of making horse shoes with a die. 10 years.

— Louis Joseph Etienne Cordier, Paris, for improvements in flood-gates and sluices. 10 years.

— Francois Pierre Lebourlier, Paris, for a method of stripping the rind, and whitening black pepper. 5 years.

To Isaac Sargent, and Thomas Hodgkin, Paris, for improvements in baking bricks, tiles, slabs, and earthenware. 15 years.

— Armand Lemonnier, mechanic, Chatillon sur Seine, and Joseph Maitre, of Villotte, for a machine for making the tires of wheels. 10 years.

— Jean Pierre Caplain, mechanic, and Deve Lemaitre, of Elbeuf, for a machine for making pins' heads in general. 5 years.

— Edward Church, American Consul, at Lorent, for a gandole to sail by steam. 5 years.

— Jacques Francois Etienne Onarmier, Paris, for a high pressure filtering stone. 10 years.

— M. Guelle, tinman, Paris, for improvements in making skylights, window frames and glazing, called the finestra. 5 years.

— M. Hulot, calico maker, St. Arnould, for a stuff for making collars and stocks. 5 years.

— Louis Ladaviere, Jeweller, Lyons, for a machine called semequelle, for marking the points at cards and other games. 10 years.

— Moisson Devaux, Paris, Banker, for an apparatus for making metallic tubes by pressure. 10 years.

— Stanislas Sorel, of Ecouche, and Louis Francois Prudent Artus, of Alencon, clockmaker, for a pyrometre, for measuring the higher temperatures. 5 years.

— M. Bantam, jeweller, of Paris, for a double pair of spectacles called the binocle a tirage simultanee. 5 years.

— Hilaire Bellomet Warin, ironmonger, of Remilly, for improvements in spindles, &c. 5 years.

— Dr. Allevy, Paris, for a machine called the hydro ponderiqüe, for raising weights, 15 years.

— Charles Frederick Gagnoux and Co. silk manufacturers, Lyons, for a loom for making net work with square meshes. 15 years.

— Parfait Modeste Carpentier, Paris, for a mechanical bed and arm chair with springs, for the use of sick people. 15 years.

— Henry Pottet Delcusse, Gunsmith, Paris, for a gun which may be loaded by the stock or breech. 5 years.

— Theodore Jones, London, for improvements in the wheels of carriages, &c. 15 years.

— Pierre Fasanini, Lyons, for a machine for weaving, so constructed that when the woof or warp breaks, the machine stops. 10 years.

— Louis Bassnet Perfumer, Bordeaux, for a powder and lotion for preserving the teeth and mouth, called the poudre and liqueur vegetales. 5 years.

— Jean Baptiste Fournier, Paris, for improvements in the pockets of billiard tables. 5 years.

— Pierre Victor Becasse, Paris, for improvements in the spokes of wheels. 5 years.

To M. Poyenar, Paris, for a portable pen, which supplies itself with ink. 5 years.

— Messrs. Risler and Dixon, of Cernay, for a loom, called the metier dixon. 5 years.

— Messrs. Vesin, of Cessieux and Devannes, of Cherbourg, for a system of inclined planes suitable instead of sluices, in navigating rivers and canals. 10 years.

— Jean Numa Anverny., and Augustin Ginaux, of Montpellier, for a machine for making and cutting corks. 5 years.

— Timothy Burstall, of Leith, for an apparatus called a locomoteur, adapted to steam carriages, and improvements in supplying boilers with water for steam. 15 years.

— Richard Laurent, Lieutenant in the French Navy, for a process for enabling laden craft to come up rapid rivers, by the rapidity of the current itself. 15 years.

— Louis Scheriz, of Strasbonrg, for a process for raising silkworms upon vegetables, without mulberry leaves, and for a method of cleaning and enlarging their beds. 15 years.

— Isaac Winslow, of Havre, for a machine for spinning cotton without twisting, called the rotta flotteur, ou fileur en doux economique and expeditif. 5 years.

— John Jones, of Leeds, for an apparatus for brushing cloths and other stuffs. 10 years.

— Michel Lorillard, locksmith, for a machine for preparing flax and hemp. 15 years.

— Jacques Augustin Gaubert, of Montpellier, for a method of procuring salt and cream of tartar, from the skins of grapes, after they have been pressed for making wine. 10 years.

— M. Pape, piano forte maker, Paris, for a machine for boring and cutting veneer, and also for turning the feet of pianos, and furniture. 10 years.

— Andre Millet, Paris, builder, for an apparatus adapted to the tops of chimney pots, to prevent the smoke from beating down by high winds. 5 years.

— Albert Sakoski, Paris, boot and shoe maker, for the invention of an elastic water-proof shoe with steel soles. 10 years.

— Charles Dollfus, of Cernay, for a machine for carving circles and other figures upon the rollers for printing cotton. 5 years.

— Jean Antoine Collombet, Bordeaux, writing master, for improvements upon the American method. 5 years.

— Philibert Maillot, Lyons, for the invention of a malleable and ductile metal, called maillechort. 5 years.

— Pierre Fusz, of Insming, Chateau Salins, for a machine, called the enrayure a levier, for locking the wheels of carriages, without requiring the coachman or postillion to alight. 10 years.

— Migcon, forge master, at Belfort, for a new invented pair of bellows. 15 years.

To Jean Henri Pape, instrument maker, Paris, for a new invented sounding board, and a superior arrangement of the hammers. 10 years.

— Wilhelm Scheinlein, engineer, of Langenfield, Bavaria, for a surgical instrument, called the Lithou-triptor, for breaking the stone in the bladder, and reducing it to powder. 5 years.

— Jean Christophe Gotten, mechanic, Paris, for a mechanical hydraulic lamp. 15 years.

— Louis Nicolas Debergue, Paris, for a loom for weaving flax, cotton, silk or wool. 15 years.

— Antoine Perpigna, Paris, for a new invented filtering stone. 10 years.

— Francois Antoine Sautermeister, instrument maker, Lyon, for an instrument with eleven keys, called the Nouvel ophicleide.

— Charles Rule, Paris, for a process for extracting gas from all oily, pitchy, bituminous, and other substances with great economy, security and dispatch. 15 years.

— M. Lecarriere, gas apparatus manufacturer, Paris, for a machine for regulating the emission of the gas. 5 years.

— Gabriel Francois Bardel, Paris, for a method of making steel. 15 years.

— Auguste Sevene, Paris, for a machine for clipping cloths and stuffs. 15 years.

— Pierre Larguier, St. Rouan, Notary, for a new method of applying steam in silk mills, for heating the water. 5 years.

— M. Lepine, Paris, for a new invented lamp with lasting wicks. 5 years.

— Pierre Chaussy, of Avignon, for a press for extracting olive oil, and the juice of grapes, &c. 5 years.

— Jacques Etienne Morcau, steel chain maker, Paris, for a machine for making clasps. 5 years.

— Benjamin Devaux, Paris, for an invention for making paper and paste board of hemp. 10 years.

— Andre Delcourt, Paris, for an improved machine, called a Linourges, for spinning flax, and preserving it from the damp. 10 years.

— Mathias Levis Lauzenberg, currier, of Strasbourg, for a machine for separating sheep, goat and calf skins, in halves. 10 years.

— M. Poirot de Valcourt, Paris, for a delving machine. 15 years.

— William Wilmot Hall, of Baltimore, for a method of using the warm air, and other heated matters, to act upon a piston. 15 years.

— Silvestre Vanhoorick, Inspector General of the studs, at Strasbourg, for a carriage, which by means of a moveable shaft, cannot be overturned. 10 years.

To Alexander and Robert Carswell, of Greensworth, Scotland, for improvements in vessels, set in motion by machinery, acting upon the water. 15 years.

— Pierre Joseph Paret, of Montpellier, mechanician, for a weighing machine. 15 years.

— Jacques Augustin Gandais, of Paris, plated silver manufacturer, for a steam and filtering coffee pot. 5 years.

New Patents Sealed, 1827.

To Gabriel de Soras, of Leicester-square, in the County of Middlesex, Gentleman; and Stacey Wise, and Charles Wise, of Maidstone, in the County of Kent, paper-makers, in consequence of a communication made to them by a certain foreigner resident abroad, for an invention of certain improvements in sizing, glazing, or beautifying, the materials employed in the manufacturing of paper, pasteboard, Bristol boards, and other substances.—Sealed 21st August—6 months for inrolment.

To John Hague, of Cable Street, Well Close Square, in the Parish of St. George in the East, in the County of Middlesex, engineer, for his invention of a new method of working cranes, or till hammers.—30th August—2 months.

To Benjamin Merriman Combs, of Birmingham, in the County of Warwick, ironmonger, for his invention of certain improvements, or additions to a pulley machinery, and apparatus used and applied for securing, fixing, and moving curtains, and roller, and other blinds.—30th August—2 months.

To William Debtmer, of Upper Marylebone Street, Fitzroy-square, in the County of Middlesex, piano forte maker, for his invention of certain improvements on piano fortes.—30th August—6 months.

To William John Ford, of the Parish of Mildenhall, in the County of Suffolk, farrier, for his invention of certain improvements in the make, use, and application, of bridle bits.—6th September—2 months.

To George Clymer, of Finsbury Street, Finsbury-square in the County of Middlesex, engineer, for his invention of an improvement in typographic printing, between plain or flat surfaces.—6th September—6 months.

METEOROLOGICAL JOURNAL, FOR AUGUST AND SEPTEMBER, 1827.

1827.	Thermo.		Barometer.		Wind.	Weather.
	Max	Min.	Morn.	Even.		
AUG.						
26	62	48	29,98	30,04	N.	Cloudy—slight showers
27	71	52	30,09	30,11	N.—N. W.	Fair—clear
28	70	53	30,12	30,16	N.	Ditto—Cloudy
29	71	53	30,21	30,15	N.	Ditto—clear
30	63	55	30,11	30,01	N,W.	Cloudy—rain .05
31	70	50	30,10	30,15	N.	Fair clear
SEPT						
1	72	50	30,18	30,15	N. E.—E.	Ditto—ditto
2	71	48	30,17	30,12	N. E.—E.	Ditto—ditto—Fog morn.
3	68	51	30,14	30,14	N. E.	Ditto—ditto
4	60	50	30,15	30,12	N. E.	Ditto—cloudy
5	64	50	30,11	30,12	N. E.	Ditto—ditto
6	66	53	30,12	30,13	N. E.	Ditto—ditto
7	62	53	30,12	30,10	N. E.	Ditto—Ditto—damp
8	62	54	30,10	29,99	N. E.	Ditto—ditto
9	64	56	29,85	29,75	S. S—W	Cloudy rain .87
10	66	57	29,72	29,69	S. W.	Ditto—ditto 13
11	72	63	29,66	29,59	S.W.	Ditto—ditto .06
12	68	54	29,57	29,62	S. W.	Ditto—ditto .63
13	68	51	29,72	29,94	N. W.	Ditto—fair
14	67	52	30,01	30,01	S. W.	Ditto—ditto
15	71	60	30,07	30,07	N. W.	Ditto—ditto
16	68	60	30,13	30,12	N. N.—W.	Cloudy—slight showers
17	72	58	30,13	30,10	N. W.—W.	Fair—Clear
18	68	50	30,07	30,01	N.W—N—N.E.	Cloudy—rain .15
19	63	49	29,97	29,93	N. W—N.	Ditto—fair
20	55	47	29,63	29,73	E.—N.E.	Cloudy—rain .36
21	65	47	29,66	29,49	W.	Ditto—ditto .04
22	60	45	29,45	29,35	S.—W.	Ditto—ditto .09
23	64	47	29,35	29,47	S.—W.	Ditto—ditto .12
24	64	48	29,53	29,52	S.—W.	Ditto—ditto .15

HITCHIN HERTS. WATSON PERKS.

D.	H.	M.	S.	
1	0	0	0	☉ before the Clock 10' 9".
3	4	0	0	☿ in conj. with ϑ in Virgo
4	0	0	0	♅ Stationary.
4	14	19	0	Ecliptic Opposition or ● Full Moon.
4	22	0	0	☾ in conj. with ε in Pisces.
5	0	0	0	☉ before the Clock 11′ 23″
7	0	0	0	☿ in conj. with ♃ long. 22½° in Libra ☿ lat. 7′ N. ♃ lat. 1° 5′ N. diff. lat. 58′
8	23	0	0	☾ in conj. with ε in Taurus.
9	16	0	0	♂ in conj. with σ in Leo.
10	0	0	0	☉ before the Clock 12′ 48″
12	13	17	0	☾ in □ last quarter.
14	9	0	0	☾ in conj. with 1 α in Cancer
14	10	0	0	☾ in conj. with 2 α in Cancer
14	22	0	0	☿ in conj. with λ in Virgo.
15	0	0	0	☉ before the Clock 14' 1″
15	13	0	0	♀ in conj. with ♃ long. 24° in Libra ♀ lat. 1° 4 N. ♃ lat. 1° 4′ N. diff. lat. 0° 0′

D.	H.	M.	S.	
15	17	0	0	☾ in conj. with π in Leo.
17	17	0	0	☾ in conj. with υ in Leo
20	0	0	0	☉ before the Clock 15'
20	3	47	0	Ecliptic conj. or ● New Moon
20	11	0	0	☽ in conj. with ♀ long. 1° in Scorpio ☽ lat. 22' S. ♀ lat. 55′ N. diff. lat. 1° 17'
21	7	0	0	☽ in conj. with 2 α in Libra
22	0	0	0	☽ in conj. with 4 ξ in Libra
22	7	0	0	♂ in conj. with β in Virgo.
22	13	0	0	☽ in conj. with 1 β in Scorpio
22	13	0	0	☽ in conj. with 2 β in Scorpio
22	16	0	0	☽ in conj. with γ in Scorpio
23	16	36	0	☉ enters Scorpio.
23	17	0	0	♀ in conj with λ in Virgo
25	0	0	0	☉ before the Clock 15 44″
26	19	0	0	☽ in conj. with β in Capri.
26	21	48	0	☽ in □ first quarter.
30	0	0	0	☉ before the Clock 16′ 9″

The waxing moon ☽—the waning moon ☾.

Rotherhithe. **J. LEWTHWAITE.**

METEOROLOGICAL JOURNAL FOR AUGUST AND SEPTEMBER, 1827.

1827.	Thermo.		Barometer.		Rain in inches.	1827.	Thermo.		Barometer.		Rain in inches.
	Hig.	Low.	High.	Low.			Hig.	Low.	High.	Low	
AUG.						JULY.					
26	59	47	30,06	stat.		11	70	55	29,77	29,69	,1
27	68	44	30,18	30,16		12	64	52	29,70	29,65	
28	66	52	30,20	30,18		13	63	48	29,99	29,77	,5
29	66	39	30,25	stat.		14	66	42	30,10	30,08	
30	64	44	30,19	30,10		15	70	52	30,17	30,10	
31	67	50	30,20	30,16		16	70	57	30,10	30,08	
SEPT.						17	69	54	30,29	30,18	,025
1	69	50	30,24	30,23		18	70	51	30,09	30,16	
2	66	45	30,24	30,19		19	58	45	30,05	30,04	,075
3	67	44	30,20	stat.		20	54	42	29,74	29,70	,25
4	60	33	30,20	30,19		21	63	43	29,77	29,67	,025
5	67	51	30,15	30,14		22	54	49	29,49	29,40	,2
6	64	44	30,16	stat.		23	60	43	29,52	29,43	,075
7	66	41	30,17	30,16		24	63	44	29,60	29,56	.225
8	64	52	30,15	30,07		25	62	45	29,60	stat.	,125
9	67	52	29,95	29,84							
10	66	54	29,80	stat.	,85						

LOWER EDMONTON. **CHARLES H. ADAMS,**

Latitude 51° 37' 2" N. Longitude 3' 51" W. of Greenwich.

LITERARY AND SCIENTIFIC NOTICES.

Mr. Britt, of Trinity Square, is said to have brought to perfection a new description of stuffing for mattrasses, palliasses, &c. which consists in the employment of a species of sea-weed, termed alva-marina.

The advantages said to be gained by its application to such purposes, are, that it never loses its elasticity, nor becomes] matted like the material at present used, it also rejects insects of every description. Great as may be the desideratum gained by applying the alva-marina for the above purposes we very much doubt whether it will equal the really luxurious iron wire substitute for down, furnished by Mr. Pratt, of Bond Street, which more than possesses the above advantages, the particulars of which invention we have fully developed in our last volume.

A volume is in the press, entitled, Circle of the Seasons, and Perpetual Calendar and Almanac: to which are added, the Circle of the Hours of the Day, and the History of the Days of the Week; the whole intended as a compendious illustration of the history and natural phenomena of each day of the year. The work will be embellished by Branston.

Among the Annuals for the New Year, will be found two additional works of the same cast. One, entitled the Keepsake, will be produced by Mr. Jennings of the Poultry, under the direction of Mr. C. Heath, and from the singular beauty of the plates, which we have seen as specimens of its embellishments, we think it promises to outvie the Souvenir; the other will be produced by Mr. Pickering, the publisher of the beautiful miniature edition of Shakespeare, and will be called the Bijou, it will contain a number of interesting and valuable graphic illustrations, and among the contributors to the literary portion, will be found the author of Waverley and Sir Thomas Lawrence, and two early productions of his Majesty and the late Duke of York.

Mr. Latour Allard, of New Orleans, has procured from Mexico a valuable collection of American antiquities, and old drawings, which he has forwarded to Paris; a descriptive account of them is to be given in the next volume of the memoirs of the Geographical Society.

Preparing for publication by Mr. W. C. Smith, to appear in monthly parts, Rambles round Guildford, with a topographical and historical description of the town of Guildford.

Mr. Ackerman is about commencing a work to be completed in about twenty monthly parts, the intention of which is to give portraits of the most celebrated painters of all the schools, from the best known representations in existance, they are to be executed in the best style of Lithography, each portrait will have an accompanying memoir of their lives, and a short notice of their most celebrated performances.

A new General Atlas to be comprised in about fifty maps, is in considerable state of forwardness, the whole will be engraved by Mr. Sidney Hall, in this Atlas will be shewn the discoveries of recent travellers, and the changes that have taken place in the boundaries of territory.

Lodge's Portraits of Illustrious Personages, Part XXVII, has lately been published, the contents of this part which is of the same meritorious character as the preceeding ones, will be found to contain portraits of Francis Theresa Stuart, Duchess of Richmond, represented as Brittannia, making a most interesting picture; Robert Spence second Earl of Sunderland; Ralph Lord Hopton; Robert Rich, Earl of Warwick; and Charles Blount, Baron Montjoy, and Earl of Devonshire, the latter is a curious portrait from a picture by Juan Pantoxa, in the possession of the Duke of Hamilton; the portrait of Lord Hopton is beautifully done by Holl, from a painting by Vandyke belonging to Lord Egremont.

this disadvantage, as will appear upon a slight view of those vehicles, which are usually made as follows: The body generally contains accommodation for four persons inside, with continuations before and behind, forming large receptacles for luggage, and with seats upon them for the outside passengers and coachman. Such body part being intended to bear the weight of fifteen persons with luggage, must be very securely framed together, and consequently cannot admit of the least flexibility. The carriage therefore, in accommodating itself to the unevenness of the roads must frequently run upon three wheels, and thereby be subjected to very considerable strain, for it is evident, that if one corner bearing be raised by a wheel passing over a stone, or any other sudden rise in the road, that one half of the carriage will be raised at the same time, and the whole weight of that half so lifted will be supported by the elevated wheel, and its axle and springs at the corner which passes over the obstacle; the spring being thereby greatly depressed. Each wheel, axle, and spring, therefore is occasionally required to support double the weight that they are designed to carry, and this being thrown upon them suddenly, renders it necessary to construct those parts of the carriage of double the strength that would otherwise be thought desirable.

The present invention is designed to remove these very important objections, and is carried into effect in the manner shewn in Plate VI.

A circular horizontal locking wheel formed of iron, is affixed to the front part of the carriage, as at *a*, fig. 1, which is shewn without the carriage, as it would be seen from above upon a larger scale, at fig. 2. This wheel bears upon the axle tree-bed *b*, *b*, and upon segments supported by arms *c*, *c*, extending from the axle tree bed, and is enabled to turn round horizontally upon these bearings in the act of locking: the axle tree bed itself being attached to, and supported by the front springs *d, d.* A bar *e, e,* crosses the middle of the locking wheel *a*, and is attached to it by ears and bolts, the centre of this bar having a circular hole through which a pin *f*, passes for the purpose of forming the pivot or axle on which the locking wheel *a*, turns. The extremities of the bar *e*, which extend beyond the wheel, are made truely cylindrical, and to these are attached the plummer boxes, or gudgeons *g, g,* from whence the bent arms *h, h,* extend for the purpose of supporting the front part of the body of the carriage, as seen in the 1st figure.

It will now be perceived that in the event of one of the fore wheels, running over a large stone, or any other elevated obstruction in the road, the axle tree *i*, will be thrown out of its horizontal position; but the body of the carriage in front being supported solely upon the pivots at the ends of the bar *e*, the plummer boxes *g, g*, will turn upon the pivots, and cause the bent arms *h, h*, to keep the body of the carriage in its erect position, although one of the fore wheels is raised up so considerably.

A carriage whether of the phaeton or stage-coach construction, with this improvement adapted to it will be found to possess the following advantages:—

1st. The weight being at all times equally distributed upon the four corners, each spring can only be required to support that portion of the load immediately over it; these parts may therefore be made proportionably lighter, and the vehicle altogether built of considerably less weight.

2nd. The resistance in draught is much lessened, the horses having only to exert sufficient force in drawing over every opposing substance, one-fourth, instead of one-half, of the entire load : this advantage on uneven roads must be immense.

3rd. The liability of the carriage to be overturned is much lessened; in fact, this circumstance is rendered impossible, as far as regards the front wheels, either of which may be raised any height without disturbing the equilibrium of the carriage body. The same advantage attends the hind wheels, though not to so great an extent, but it may be here remarked, the shock from a front wheel meeting an obstacle is much greater, and more likely to overturn the machine, than a similar concussion with the hind wheel.

These remarks apply generally to all four-wheel carriages, but more particularly to the light open carriages now in such general request, some of which (with a view to lessen the draught) have the hind and front wheels brought very near to each other. To such carriages the present invention is an object of great importance, it can be introduced with much effect; there is no additional weight in its application; on the contrary, it affords a more simple, secure, and lighter method of construction than any heretofore adopted.

In conclusion the patentee says, " I wish it to be understood, that my invention and claim of patent right, consists in the adaptation of the longitudinal bar and swivels, by which the body of the vehicle of whatever kind, is supported and connected to the locking wheel, springs, and fore axle-tree."

[*Inrolled August*, 1827.]

Delafons's Instruments for the Teeth.

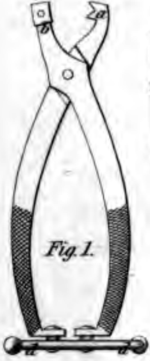


Fig. 1.

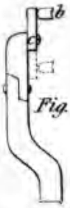


Fig. 2.

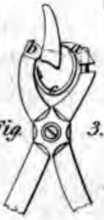


Fig. 3.

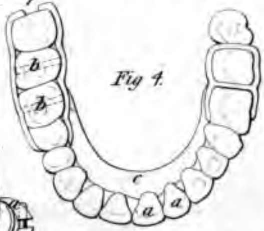


Fig. 4.

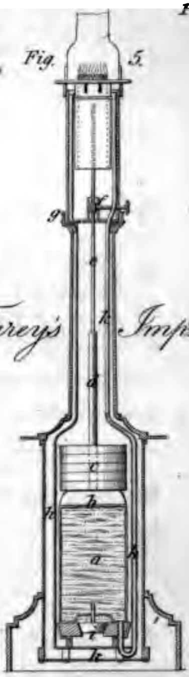


Fig. 5.

Farey's Imp.d

Seaton's Imp.d Wheeled Carriages.

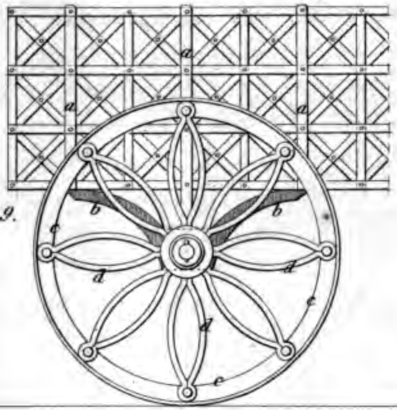


Fig. 9.

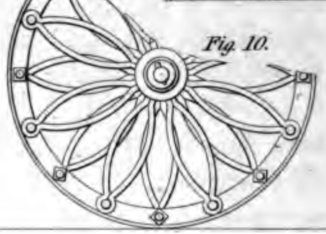


Fig. 10.

Badnalls Imp.ts in Manufacturing Silk.

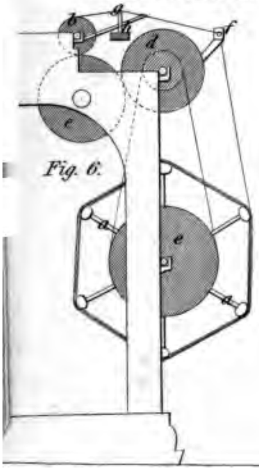


Fig. 6.

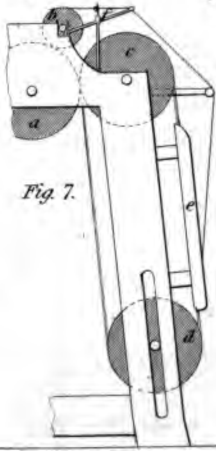


Fig. 7.

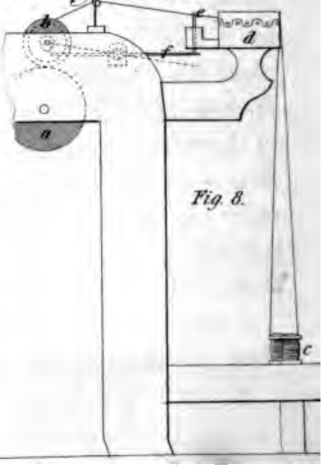


Fig. 8.

del.

1st Nov.r 1827.

G.G

To John Palmer de la Fons, *of George Street, Hanover Square, in the County of Middlesex, Dentist, for his Invention of an Instrument for Extracting, and Method of Fixing Teeth.*

[Sealed 16th July, 1825.]

This instrument combines the principles of the forceps hitherto employed for extracting teeth, with the German key used for the same purpose; and is said to possess advantages which are not to be obtained by either of the two instruments separately applied. To such of our readers as are not practically acquainted with the surgical operation of extracting teeth in all its variety of circumstances, the elaborate specification of this invention will be extremely uninteresting. We have therefore thought it desirable in this instance to give only the leading features proposed by the patentee, as indeed it appears that the instrument may be considerably varied in its forms so as to suit any particular case under operation.

Plate VII, fig. 1, shews one form of the improved instruments. It consists of a pair of forceps, one chap of which has a claw *a*, of the ordinary kind, the other chap has a piece *b*, called a bolster. This bolster is made to turn upon a screw, and may be raised or lowered on the chap of the forceps, or otherwise shifted in its position, so as to form a resistance and bearing to the tooth, either opposite to, or above, or below the claw, by which means the same instrument will be enabled to take hold of a tooth of any form, and in any stage of decay.

A variation in the mode of attaching the bolster to the chap of the forceps is shewn at fig. 2, which is a side view of a pair of forceps, the bolster *b*, being affixed to the chap, by means of a moveable piece *c*, screwed on to the chap of the forceps. On this plan the situation of the bolster may be more extensively varied than in the former, and will of course be capable of performing in extreme cases.

In order to enable the operator to take more firm hold of the tooth, than he would be capable of doing merely by the grasp of the fingers, a lever bar is applied to the extremities of the handles of the forceps, as shewn at *d*, *d*, in fig. 1, one of the handles being attached to the lever by a pin and rivet, the other by a pin working in a slot. It will be obvious that by turning this lever bar *d*, great force may be applied in pinching the tooth, consequently it will be very firmly held, and not liable to slip away from the instrument.

Another contrivance is shewn at fig. 3, in which *a*, is a loose claw sliding upon a pin at the end of one of the chaps of the forceps, on the opposite side is the bolster *b*, formed with an inclined plain. The sliding claw is attached to a spring *c*, and having taken hold of a tooth, as in the figure, the closing of the forceps causes the spring to slide the claw and the inclined plain forward, which has the effect of drawing the tooth, merely by the pinch of the forceps, without any wrench or turn of the instrument. This contrivance is designed for drawing front teeth.

There are several modifications of this part of the invention proposed, principally in varying the form and position of the spring, and there is also a contrivance for sliding the moveable claw by means of a jointed lever.

The improvement proposed in fixing artificial teeth in the human head, consists in the introduction of double springs, in place of the single springs heretofore used for that purpose.

Fig 4, shews the roof of the mouth, with the natural teeth standing round, as fixed into the upper jaw, excepting the two front teeth *a, a,* and the two double teeth *b, b,* which are artificial; *c, c,* is a plate of gold covering the inner part of the gums, and to which the artificial teeth are attached. The teeth *a, a,* are riveted to the plate *c,* and the teeth *b, b,* are affixed to it by means of a double spring clip of gold wire, which runs through the two teeth holding them fast, and extends also far enough on each side to embrace two of the natural teeth, by which means, the artificial teeth are held securely.

This plan of double springs affords (the patentee says) " a greater degree of play," than the ordinary mode of fastening, and therefore is very much preferable.

[*Inrolled January,* 1826.]

To Joseph Farey, *of Lincoln's Inn Fields, in the County of Middlesex, Civil Engineer, for an Improvement in Lamps.*

[Sealed 16th July, 1825.]

The lamp to which this improvement is to be applied, is proposed to be of the pedestal kind for the table, formed in the shape of an ornamented column, the base containing the oil, the shaft conducting it upwards, and the capital constituting the gallery for the support of the burner and the glass chimney.

The patentee says, that his improvements in lamps consist in applying the direct action of a descending weight, or the direct action of a spring, to press upon, and diminish the capacity of the oil chamber, or reservoir which contains the store of oil with which the flame of the lamp is to be maintained. The lower part of the lamp has a cylindrical or square base, like other pedestal lamps, and within this the supply of oil is deposited in a bladder, or other tight and flexible vessel; which being pressed upon by a descending weight, forces a column of oil up a rising tube to the burner.

Plate VII, fig. 5, is a section of the lamp, taken through its centre vertically; *a*, is the oil chamber consisting of a flexible bag of a cylindrical form. This bag may be made of leather, or of other pliant membrenous substance, securely closed at the seam, and rendered perfectly impervious to oil. On the top of the bag a disc *b*, is placed, which presses upon it, and may be loaded with several ring formed weights *c*. This disc is fastened by a flange or other contrivance to a perpendicular tube *d*, over which the ring formed weights are passed, and at the upper end of this tube a rod *e*, is inserted, having a stop like one of the tubes of a telescope. The upper part of the rod *e*, has a rack, by means of which, on the screw and pinion *f*, being turned, the rod and tube with the weights, and the disc *b*, may be raised, and the chamber *a*, filled with oil.

In filling the chamber with oil it is to be poured through a small aperture or valve at *g*, from whence it flows down to the bottom of the case at *h*, and the pressure being removed from the top of the bag *a*, the oil passes upwards through a conical valve *i*, into the bag, and thereby fills it.

The rack rod *e*, being now lowered, it slides down within the tube *d*, and the weighted disc *b*, being by that means allowed to press upon the top of the bag or oil chamber *a*, a column of oil is forced up the rising tube *k*, *k*, *k*, towards the burner. At the top of this tube there is

To Josias Christopher Gamble, *of Liffy Bank, in the County of Dublin, and Kingdom of Ireland, Chemist, for his Invention of certain Apparatus for the concentration and chrystallization of aluminous, and other saline and chrystallizable solutions: parts of which Apparatus may be applied to the general purposes of Evaporation, Distillation, Inspissation, Desiccation, and especially to the generating of steam.*

[Sealed 7th February, 1826.]

The leading feature of this invention is the employment of a medial fluid between the external surface of a boiler, or other vessel, in which any chemical processes are to be performed, and the fire whereby it is to be heated. The intention of this contrivance is that the medial fluid against which the fire is to be brought in direct contact, may be of a more dense quality than the fluid under operation. For instance, salt water is more dense, and may be made to contain a greater quantity of heat than pure water, and hence by surrounding a boiler with a stratuum of a dense fluid, as of salt water, or any other more dense fluid, in an outer vessel, the contents of the inner vessel may be made to boil, though the fluid in the outer vessel is below the boiling point.

Plate VIII, fig. 1, represents the section of a boiler *a*, placed within a jacket or outer case *b*, *b*, which is securely fastened to it by flanges and rivets, and properly luted at the joints. Between the inner vessel and the jacket, there is a narrow space *c* formed, extending entirely round the bottom, and sides of the boiler, into which the medial fluid is to be introduced; *d*, is a bent pipe leading from a vessel *e*, in which the matter intended to constitute the medial fluid is placed, and by means of this pipe, the fluid is conducted into the narrow space *c*. The vessel *e*, must be occupied by the fluid higher than the top of the bent pipe, when a stop-cock being opened, the fluid will be allowed to run through the pipe *d*, into the space *c*, surrounding the boiler, and the air contained in that space will escape at the air valve, in the upper part of the bent pipe. The material to be operated upon may now be placed in the inner vessel or boiler.

The liquor proposed to be employed as the medial fluid must be of that quality which has its boiling point thirty five degrees or more, higher than the boiling point of the liquor, about to be operated upon in the vessel *a*. As soon as the heat of the fire in the furnace, has raised the temperature of the medial fluid to about thirty degrees higher than the boiling point of the liquor in the inner vessel, the latter will commence boiling, while the medial fluid itself will not boil.

The patentee says, "I have uniformly remarked the important fact, that any fluid medium forming a stratuum of two or three inches in diameter, as represented in the above apparatus, cannot have its temperature raised higher than from thirty to twenty-two degrees above the liquid in the interior boiler. In other words, I find the conducting power of the medial liquid in the outer vessel, and the boiling fluid so great, that the heat is expanded in evaporating the boiling liquid as fast as it is communicated by the fire to the medial fluid."

The vessel *a*, is intended for a still, having a dome top and a pipe leading off to the refrigerating apparatus. But this principle of boiling may be applied to any other form. The patentee has therefore proposed the construction of a boiler as *f*, fig. 2, having a flat or parrallel chamber *g*, beneath, for the reception of the medial fluid, which is to be supplied through a bent pipe *h*, from the reservoir *e*, in the same manner as described above. This form of chamber is to be made two or three inches deep, it stop and bottom being held together by bolts and rivets. The boiling vessel above may be of any desirable depth, from twelve to eighteen inches is proposed, and the heat of the fire in the furnace being communicated through the medial fluid as before described, the liquid and other materials in the boiler will not be subject to become burned, which renders such an apparatus particularly eligible for boiling and concentrating sugar, salt, and other chrystallizable matters.

In applying the same principles of a medial fluid to the generating of steam, it is proposed to construct the boiler, and its appendages as shewn at fig. 3. The external form of the boiler is cylindrical, with one hemespherical end. Within this is a vessel of similar shape, having a jacket extending round it, which forms a chamber *a*, *a*, *a*, of two or three inches thick, for the reception of the medial fluid. This being made perfectly tight and strong, is secured within the former in a proper workman like way, leaving the space for the boiler *b*, *b*, *b*, on the outer surface. The partition c, *c*, is then constructed of fire brick, and the whole is properly erected upon masonery.

A bent pipe *d*, as before, leads from a reservoir *e*, and through this pipe the medial fluid is conveyed to the chamber *a*, *a*, *a*, in the way already explained. Fire being now placed in the furnace, the flame and heated vapour proceeds along the flue *f*, *f*, *f*, heating the medial fluid, through which the heat is transmitted to the water in the boiler *b*, and steam being thereby generated it passes off by the pipe *g*, to supply the working cylinder of an engine, or for any other purpose to which it may be applied.

This boiler is to be made of iron, strengthened and protected on the outside by strong hoops of wrought iron, like those placed round the tires of cart wheels.

The advantages of this apparatus the patentee conceives to be these; "1st, the form of the outward cylinder and the strong hoops of malleable iron by which it is surrounded give it great power of resisting the force of high pressure steam; 2d, the lengthened circuit given to the flame by means of the returning flue, greatly economises heat; 3d, the medial fluid being capable of heating the water in the boiler within thirty degrees of its own temperature, gives us the command of very high pressure steam. If fixed oils for instance, were the medial fluid, the water in the boiler might be safely raised to four hundred degrees of temperature, which would put under our command a power not hitherto successfully employed by the steam engine; 4th, with this apparatus we can work in perfect security, and dispense with the use of valves.

"Let the outer cylinder be made of sufficient strength to resist the force of steam raised to the temperature of the boiling point of the medial fluid, and it is evident an explosion can never happen; because the boiling water receiving its heat from the medium, never can be hotter than the medium; and the medium not being confined by pressure, can never be raised above its boiling point, so the boiling water can never exceed or even reach that boiling point.

"Thus notwithstanding the vastly increasing force of high pressure steam, it will be always in our power, by means of the strong hoops, to give to the outer boiler a power of resistance greater than the force of the steam applied to it. The middle cylinder *g*, from its form and position, will always be superior to any force it can have to bear.

"When the medial fluid consists of animal or vegetable oil, it will be advisable to confine its temperature considerably below its boiling point, say to about 400 Fahr. to guard against its decomposition. For the same reason the middle cylinder should be kept completely covered with boiling water, and should the medial fluid at any time boil, and be thrown back into the reservoir *d*, it is an indication of the engine rising too high in temperature, and consequently of the excessive force of the steam."

The kind of vessel proposed to be employed for the chrystallization of alum and other saline substances, is shewn in section at fig. 4; *a*, is a pan of cast iron, set into brickwork *b*, *b*, in such a way as to rest upon short feet, and have a space of a few inches wide all round it, into this space steam is to be conducted from a boiler by means of the pipe *c*, for the purpose of heating the pan. In the middle of the pan, a rod or staff *d*, is to be suspended by means of a rope or chain passed over pullies. When the saline particles have formed, that is the chrystals assumed one solid mass, the steam is to be allowed to act upon it for the purpose of loosening it from the interior of the pan; the rod or staff *d*, is then to be drawn up by a crane, and the mass removed to a proper place for breaking up the chrystals and removing the mother waters.

When chrystals less solid than alum are to be made, a broad plate is to be attached to the bottom of the rod, and it is to be observed that in concentrating most of the salts, the boiling vessel and the staff, must be lined with lead, or such material as will resist the action of the liquor.

The patentee defines the particular features of his invention in these words, "I do not claim as my invention the double vessels with their chambers, such vessels having been used for high pressure steam and various other purposes. But I do claim the invention of the communicating tube and reservoir by which such vessels can be more advantageously applied than hitherto to useful practice. Neither do I claim the use of any particular medial liquid.

"For low heats as the distillation of ether or alcohol, the inspissation of extracts, or drying of powders, I recommend water, or a saturated solution of common salt. When higher heat is required many other salts will be found answerable; but for boiling any liquid whose boiling point does not exceed two hundred and twenty five degrees, I prefer a strong solution of muriate of lime, the boiling point of which may be carried from two hundred and fifty, to three hundred, according to its density. For higher heats, as the boiling of sugar, or of high pressure steam, not exceeding thirty pounds on the square inch, I would recommend essential oils, especially oil of coal tar, on account of its extreme cheapness.

"Where still higher heats are requisite, the fixed animal and vegetable oils must be employed. In evaporating alum, and many other solutions, it will be requisite to line the boiler with lead, or such metal or substance as will resist the action of the boiling liquid. In this case it will also be requisite to have a much greater difference between the boiling point of the medial fluid, and that of the boiling liquid. From fifty to sixty degrees of difference I have found necessary."

[*Inrolled June,* 1826.]

To CATHCART DEMPSTER, *of Laurence Pountney Hill, Cannon Street, in the City of London, Gentleman, for his Invention of Patent Cordage.*

[Sealed 15th September, 1825.]

THE subject of this patent is a mode of preparing cordage for ships' cables and rigging, in order to prevent its premature decay by rotting.

Cords when treated in the way proposed by the patentee are said to possess other advantages also, viz. to be more pliant than when prepared in the ordinary way, with tar, and likewise to occupy less compass.

The materials to be employed for the process, are corrosive sublimate, sugar of lead, and alum; which being dissolved in water, is to be poured upon the hemp before it is twisted up into a cord, or the cord may be soaked in it.

The process may be performed in different stages of the manufacture of the rope, but it is recommended by the patentee to steep the tow in the solution as soon as it has been combed into straight lengths; or, if not in its perfectly untwisted state, at least when it has been but slightly twisted, in the early stage of making the cord.

Ten pounds of corrosive sublimate are to be dissolved in warm water, with thirty pounds of acetate or sugar of lead. These may be mixed with fifty pounds weight of alum, either in the same solution, or the alum may be dissolved in a separate vessel. The hemp, cleaned, combed and prepared ready for twisting in to rope, may be placed in a suitable vessel, and immersed in the solution; or having been twisted into the first forms of ropes, they may be placed in lengths in a trough, and the solution poured upon them from a vessel like a watering pot, taking care that the liquor be frequently agitated, in order to prevent the heavy particles of the salts from settling to the bottom.

When the ropes have been allowed to soak in this solution for several hours, they are to be removed, and twisted tightly for the purpose of expressing all the superfluous liquid. After this, the ropes are to be dried in the open air, and may then be further twisted, and laid, in the usual manner of making cables and other ropes; and it will be found when complete, that the rope will be much stronger and durable, more pliant, and in less compass than the same weight of rope prepared with tar, as is the ordinary practice.

[*Inrolled March*, 1826.]

To JAMES SHUDIE BROADWOOD, *of Great Pultney Street, Golden Square, in the Parish of St. James, in the County of Middlesex, Piano-forte Maker, for his Invention of certain Improvements in small, or what are commonly called Square Piano-fortes.*

[Sealed 6th October, 1825.]

THE object of this improvement is to prevent the recoil of the hammer when a key is struck, which frequently produces a jarring sound that is extremely detremental to the melody of the instrument. The mode by which this is effected, is by placing a small piece of cork or wood covered with cloth at the back extremity of the key, called a check, which when the key is struck rises and takes hold of a small piece called a stay under the hammer, and holds it and the hammer securely, until the key falls again, when the hammer is released.

This check is mounted upon a small pin, rising from the point of the key, and the stay is affixed to the under part of the hammer, their positions being such as shall just bring their enclined planes in contact, when the hammer falls from striking the string of the instrument; consequently, the hammer is caught and held until the key falls, whereas without this stop, the hammer by the sudden rising of the key is subject to vibrate, and to rise again, and strike the string a second time, producing the jarring tone complained of.

The patentee says, that stops have been applied to the larger description of instruments, but he claims their application in the way described to the smaller, or what are called square piano-fortes.

[*Inrolled April,* 1826.]

To RICHARD BADNALL, *the Younger, of Leek, in the County of Stafford, Silk Manufacturer, for his Invention of certain Improvements in the Manufacture of Silk.*

[Sealed 30th July, 1825.]

THESE improvements apply in the first instance to winding of silk from the reel or swift on to bobbins; and consist in the introduction of a contrivance, by which the tension of the silk is regulated, and the taking up upon the bobbin made at all times equal to the delivery from the reel.

Plate VII, fig, 6, shews a portion of a winding machine, in which the improvement is applied ; *a*, is the reel having a quantity of silk upon it ; *b*, is the bobbin on to which the silk is to be wound, as it is drawn off the reel ; *c*, is a roller to the axle of which the first moving power is to be applied, for driving the machinery ; the parts being actuated by the friction of contact. A roller on the axle of the bobbin *b*, bears upon the periphery of the roller *c*, and is turned thereby for the purpose of winding the silk upon the bobbin. The roller *d*, is also in contact with the periphery of the roller *c*, and is likewise turned by it. A pulley on the axle of *d* carries a band, which passes round a wheel *e*, affixed to the axle of the reel, and thus by the friction of contact, the rotation of the roller *c*, turns the reel which gives out the silk, and likewise the bobbin that takes it up.

The silk in proceeding from the reel to the bobbin, passes over a glass tension [rod *f*, and through an eye or guide *g*, bearing as it proceeds against the end of the lever *h*. This lever turns on a pivot in the standard of the guide *g*, and the reverse end of the lever passes under the axle of the bobbin and roller *b*. The comparative diameters of the rollers *b*, and *d*, must be such as to cause *b*, to draw the silk from the reel, with a small degree of tension, but if that tension should become so great as to endanger the breaking of the silken thread, the upper end of the lever *h*, will be pressed upon by the silk with sufficient force to cause its opposite end to rise, and to lift the axle of the bobbin, by which means the roller *b*, will be removed from its contact with the roller *d*, and the bobbin will cease to turn, until the reel has given out sufficient length of silk to relax its tension. In this way the lever *h*, will continually act, regulating the taking up o. the bobbin to the delivery of the reel, and the draft being so very uniform, it is next to impossible that the thread should break in winding, consequently there will be a great saving of the material.

A similar plan of effecting this object, is described in the specification of a former patent, granted to the said Richard Badnall, dated 10th February, 1825, see our XIIth Vol. page 300, we are therefore at a loss to understand what novelty is intended to be claimed by thus placing the same principles in a position slightly varied only from that in the former specification.

Fig. 7, shews another mode of adapting the same kind of regulating lever to what is called long reeling; *a*, is the actuating roller, which turns the bobbin *b*, and a roller on the axle of the upper rise head *c*. The skein of silk is extended over the two rise heads *c*, and *d*, which are tin drums of sufficient width to receive the breadth of the skein of silk spread out; *e*, is a shoot intended to guide the skein, and prevent the silk from tangling.

The rotation of *a*, turns *c*, as aforesaid, and causes the skein of silk to travel round in an endless web upon the two rise heads, its tension being produced by the weight of the lower rise head, the axle of which slides in grooves in the standard. The revolution of *a*, also causes the bobbin to turn by means of its friction roller *b*, and the silk being thereby drawn from the endless web, and passed over the glass rod in its way to the bobbin, presses the end of the lever *f*, and when its tension is so great as to endanger the breaking of the thread, the upper end of the lever is depressed, and lower end raised, which lifts the roller *b*, from contact with the drawing roller, and its rotation ceases, until a sufficient quantity of silk is given out from the reel to relieve its tension.

A third feature of this invention is a smooth rim of metal, placed round the upper edge of the delivering bobbins used in doubling, spinning, twisting, and throwing silks; which is intended to be employed instead of the bent wire guide, or flyer usually applied to bobbins, as shewn in the specification of the patent for improved machinery for spinning and doubling, granted to the said Richard Badnall, 18th March, 1823, see our VIIth, Vol. page 121. The flyer is stated to be very apt in rapid revolution, by its centrifugal force to break the threads or filiaments of silk, the patentee therefore dispensed with the flyer in his present improved bobbin, and places a smooth rim of polished metal on the top of each bobbin, against which the threads slide without friction.

Two of the bobbins are shewn in fig. 8, which is a partial representation of a doubling machine. In this as in the former instance, the operative parts are put in motion by the rotation of the roller *a*, the receiving bobbin being upon the axle of *b*. The improved delivering bobbins, (two or any other numbers,) are placed below at *c*, and from these the several filiaments of silk intended to be doubled are given out, which proceeding upwards, pass between a series of tension rods at *d*, where being in some degree confined, the threads are kept tight previous to being received on to the bobbin *b*.

In order to stop the machinery, in the event of one of the threads breaking, the several threads are passed individually through small loops of wire *e*, which loops are made to slide up and down in their box. The tension of the silk thread supports the wire loop, but when the threads breaks, the wire loop immediately falls upon a plate *f*, beneath it. This plate *f*, is made of tin or some other thin material, and is exactly balanced on a centre, as a scale beam. The reverse end of this lever *f*, extends to very near the axle of the bobbin *b*, and when the wire loop falls upon it, at one end, the reverse end rises, and a small catch on the axle of the bobbin as it goes round, coming against the end of the lever, the further rotation of the bobbin is stopped by the lever, and it remains stationary until the thread is replaced.

A fourth object is proposed by the patentee, viz. in the event of one of the threads breaking, while two or more are doubling, that the remaining threads shall pass against the edge of a knife, and be cut so as to prevent the doubling process from going on without the full number of threads. This is to be accomplished by attaching a bent knife to the front of the frame of the doubling machine, close to the part where the threads pass upward; and the threads being crossed, and extended at acute angles from their union, when one of the threads break, the other thread will fall into a straight line, and come against the edge of the knife, by which means it will be cut asunder.

A contrivance very much like this is shewn in the specification last referred to in Vol. VII, Plate VII, fig. 1, the only difference being that in the former instance, the knife was straight, but in the present it is formed something like the shape of a crescent, with the points flatted inwards.

[*Inrolled January*, 1826.]

To Benjamin Cook, *of Birmingham, in the County of Warwick, Brass Founder, for his Invention of certain Improvements in the Binding of Books, and Portfolios of various descriptions.*

[Sealed 10th November, 1825.]

The improvements in binding books, &c. proposed by the patentee, are designed to protect them from fire, and consist in attaching the leaves and backs of the books to plates of metal, secured by clasps in front, and by metal joints at the back. The plates may be thin iron or brass, or tinned plate, and they may be externally coated with plain vellum, parchment, or leather, as account books are usually covered, or they may be enclosed in the superior kinds of leather, and decorated by gilding, and other elegant ornaments, for the bookcase, and library.

[*Inrolled May*, 1826.]

To Benjamin Cook, *of Birmingham, in the County of Warwick, Brass-Founder, for his Invention of a new Method of rendering Ships' Cables and Anchors more secure, and less liable to Strain and Injury, while the Vessel lays at Anchor.*

[Sealed 10th November, 1825.]

The plan proposed by the patentee for preventing strains on the cables of vessels laying at anchor, consists in attaching to the end of the cable that is made fast within the vessel, a spring, by which a certain degree of elasticity is afforded to the cable, or in other words, that the cable may give out when the vessel is pressed by wind or waves, in an opposite direction to that in which it is retained by the anchor.

The spring is proposed to be of the helical kind, to one extremity of which the cable is made fast, and the other end is secured to the vessel. There is no drawing attached to this specification, exhibiting the form and mode of adapting this contrivance, but the description renders the intention so obvious that any further elucidation is assumed to be unnecessary.

It would however have been more satisfactory to us to have seen a sketch, exhibiting the method by which the patentee proposes to attach this spring to the cable, as it is possible we may have mistaken his intention, in presuming that the helical spring is to expand and contract lengthwise. For it is said, if the spring is placed within a cylindrical box, then the cable may pass over it, by which we should understand, a spring barrel similar to those which actuate clocks, and several other pieces of mechanism. The intention however, evidently is, that when the vessel is pressed by the wind or waves that the spring shall enable the cable to elongate, without straining, and after the pressure has passed, that the spring shall return to its original bearing.

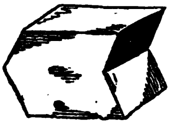
A contrivance very like this was the subject of a patent granted to W. S. Barnett, 25th November, 1824, see our XIthVol. page 345, and another patent, having a similar object to Robert Bowman, 9th December, 1824, see the same Vol. page 179.

[*Inrolled May,* 1826.]

To John James Alexander Macarthy, *of Pall Mall Place, in the Parish of St. James, in the City of Westminster, for his Invention of a new or Improved Pavement or Pitching, for Covering of Streets, Roads, Ways, and Places.*

[Sealed 10th November, 1825.]

Considering the gross impropriety of pitching the carriage-ways of the public streets of cities and towns, with stones of a wedge form, the narrowest part being downwards, which has been the usual practice hitherto, the patentee proposes a new shaped stone to be employed for that purpose, which he forms with the top and bottom



surfaces flat and parrallel, and of equal breadth, two of the sides being straight, and at right angles to the upper and under surfaces, and the other two sides being cut with two oblique angles meeting in the middle, the one extending outwards, the other inwards.

Stones formed in this shape, if they are all made exactly of the same size, and cut on the sides accurately at the same angles, will when placed upon a solid even bed, lock into one another, and make a more even and durable paving than any that has heretofore been constructed.

This peculiarly formed stone therefore, constitutes the subject of the patent; the other matters mentioned in the specification, being merely instructions as to placing the stones in rows extending cross-ways of the road, with firm and solid bearings at the ends of the rows, that is on the sides of the roads, to act as abutments which will prevent the stones from giving way in a latteral direction, however great may be the weight of the carriages which pass over them.

In occasionally repairing roads constituted of these stones, a screw-wrench with a claw at the end must be employed, which being passed down between two stones' its claw is made to take hold under the stone, and on turning the screw by a lever, the first stone is raised out of its situation, after which all the others in the row being unlocked, they can be removed singly with ease.

[*Inrolled May*, 1826.]

To Thomas Seaton, *of Bermondsey, in the County of Surrey, Shipwright, for his Invention of certain Improvements on Wheeled Carriages.*

[Sealed 5th November, 1825.]

There are two objects included under this patent, first, it is intended to render waggons and carts for the conveyance of heavy burthens stronger, and at the same time lighter than those of the ordinary construction ; and secondly, to form wheels for carriages in general upon a plan which shall render them elastic, in order to lessen the concussions and shocks, to which vehicles are subject in passing obstructions in the road, and by that means, to diminish the labour of the horse in drawing.

Plate VII, fig. 9, is a side view of a portion of a cart or waggon constructed upon this plan; *a, a, a*, are three upright bars of iron, united at bottom to the stretchers *b, b*. Two of these connected by a strong bar crossing in the direction of the axle-tree constitute the first framing of the sides and bed, upon which the body of the waggon is to be built.

To these upright bars *a*, horizontal bars of iron are to be attached by screw bolts or pins and rivets, and the whole is to be strengthened and held firmly together by diagonal tension bars crossing in both directions.

Upon the strong bar which holds the sides together the flooring or bed of the waggon is to be laid, consisting of iron plates with cross rails joined to the sides ; and similar uprights with stretchers, and a cross bar is to be framed for the front part of the waggon. The axle-tree of the hind wheels is to be secured to the lower parts of the stretchers, and that of the fore wheels to a horizontal locking wheel of the usual kind, placed nnder the bed of the waggon. Thus the body of the waggon is constructed, which being entirely of wrought iron, is considerably stronger than wooden waggons, and at the same time much lighter.

The improved wheels as seen attached to the waggon in fig. 9, are to be made of iron, their fillies being rings *c, c, c,* of a suitable thickness to receive the fastenings of the spokes, with a broad flange extending on each side of the outer rim of the filly constituting the tire. The spokes *d, d, d,* are made of thin bars of iron or steel, bent into a double bowed form, and pins or bolts passing through the loop at one end, fastens the spoke to the filly; the reverse end of the spoke being inserted into mortices in the nave.

This construction of wheel with bowed spokes, affords a degree of elasticity to the wheel as it runs over inequalities, which the patentee says, will relieve the jolts and shocks on the road, and enable the horses to draw the carriage of whatever description with considerably less labour than any other construction of wheel heretofore employed.

Fig. 10, is a variation in the construction of the wheel; it consists of double spokes, that is, bowed spokes of the kind described above, placed on each side of the filly, in the intervening spaces. These are to be fastened to the filly, by bolts, and let into the nave in the way already described.

[*Inrolled May,* 1826.]

To BENJAMIN SANDERS, *of Broomsgrove, in the County of Worcester, Button Manufacturer, for his Invention of certain Improvements in the constructing or making of Buttons.*

[Sealed 13th October, 1825.]

THE proposed improvement consists in a flexible shank adapted to buttons of a peculiar kind, instead of metal shanks as heretofore; by which improvement the buttons can be affixed to cloths with greater ease, and lay closer than those of the former construction.

The patentee says, that in order to render his present invention clearly understood, he must explain his manner of manufacturing buttons, for which he obtained a patent, dated 4th November, 1813. A piece of cloth or whatever other material, the face of the button is intended to be made of, is first prepared by cutting or stamping to a round shape, something larger than the size of the intended button. Upon this is to be placed a circular piece or disc of card or parchment, the exact size of the button, and next a disc of paper, coated with an adhesive composition, either of a resinous nature, or some such material which will soften, and become sticky by heat, and upon these is to be laid a button mould, having four holes, through which threads or strings have been passed to form the flexible shank.

These circular pieces or discs being put together, are then laid over a cylindrical hole in a metal block, shewn in section, in Plate VIII, fig. 6, at *a*, *a*, *a*. This cylindrical hole is to be exactly the size of the intended button, but the first mentioned disc of cloth being rather larger than the hole, it will wrinkle up on the edges, round the other discs, as it is pushed down the hole.

The tube *b*, *b*, is now to be introduced into the cylindrical hole, and its lower part being bevelled inwards, will as it is pressed down, gather the plaits of the cloth on the edge of the button towards the centre. A metal ring or collar *c*, having points or teeth round its edge, see fig. 7, is now passed down the interior of the tube, and pressed with considerable force by the punch *d*, and the block in which the cylindrical hole is made having been previously heated, the resinous or other adhesive matter will be softened, and cause the several discs to stick together, and form a solid button, which when taken out and become cold, will be very firm, and retain its shape.

The improvement in the above mode of manufacturing buttons, for which the present patent is granted, consists as already observed, simply in adapting the flexible shanks constituted of threads or strings, instead of metal wire; which flexible shanks may be made in various ways. One mode is by passing threads through a bone or wood mould, crossing each other from four holes, fig. 8; another is by passing the thread over a small cross of wood or metal, which being placed at the back of the button, and covered by the metal ring *c*, in the way above described, the tuft of thread or string will stand upon the back of the button, and form the flexible shank intended.

[*Inrolled April*, 1826.]

To William Erskine Cochrane, *of Regent Street, in the County of Middlesex, for his Invention of Improvements in certain Cooking Apparatus.*

[Sealed 8th November, 1825.]

The improvements herein proposed, consist in heating a portable oven by means of a lamp placed under it. The form of the oven, and its internal construction are not claimed by the patentee as new, but simply the attachment of a lamp to the oven, for the purpose of heating it, which constitutes the subject of the invention under consideration.

Plate VIII, fig. 5, represents a section of the portable oven *a, a, a*. It is enclosed within a jacket or outer case and between the two is the passage or space *b, b*. The lower part of the outer case is made conical, and a lamp *c*, is attached to it by pendant arms. The flame of the lamp acts against the under side of the oven, and the heat of it extends round the oven, and bakes the articles within, the smoke or vapour ultimately discharging itself at the chimney *d*, above. There is a small pipe *e*, passing from the interior of the oven, to let off the steam.

The lamp is intended to burn oil, but any other fatty or combustable material will answer the purpose, or gas may be applied instead, the invention being the attachment of a lamp to the under part of a portable oven of whatever form, for the purpose of heating it instead of ordinary fuel.

[*Inrolled May*, 1826.]

To Edward Heard, *of the Parish of St. Leonard, Shoreditch, in the County of Middlesex, Chemist, for his Invention of a certain new composition or compositions to be used for the purpose of washing in the sea, and other water.*

[Sealed 8th May, 1826.]

Earthy salts, which are held in solution by sea water, have such a powerful chemical effect on ordinary soap as to prevent its use in the ordinary operation of washing linen, and other articles of wearing apparel. The patentee has therefore formed a chemical compound in the shape of paste, which shall possess the power when introduced into sea water, of decomposing and throwing down or neutralizing the earthy salts, and hence of rendering the water capable of mixing with ordinary soap, without curding it, or changing its chemical character.

He states, in a very few words in his specification, that the compound for rendering sea water fit for washing is thus made; by mixing a highly concentrated solution of the alkalies, soda or potash, with an equal weight of any earthy base, but gives the preference to what is called China clay or porcelain earth. These materials being mixed together, are to be ground in a mill, in a similar way to grinding white lead, and when so done, a thick paste will be produced, one pound of which is sufficient to soften four gallons of sea water.

For washing in fresh water it is proposed to mix either of the above alkaline substances with a resinous base; for the sake of cheapness, it is suggested that common rosin may be employed, which indeed is to be preferred to any other resinous matter. Any quantity of this gum may be boiled with the alkali in a costic state, until it is brought to a very thick pasty consistance. It will now be found to be perfectly soluble in water, and may be employed as soft soap usually is in the operations of washing and scouring.

The patentee adds the following observations by way of explaining the particular merits of his invention "It has long been considered a desideratum to render sea-water available for the purposes of washing. Several attempts have consequently been made at various times to effect this object, but they have uniformly failed from errors in principle.

Instead of originating an enquiry into the causes which prevent soap from washing in sea water, these attempts have invariably been directed to the fabrication of soaps, which should at once answer the purpose; without any preliminary treatment of the water.

The futility of these efforts clearly betray the absence of all chemical science in the pursuit.

My researches, which began above twelve years ago, were, however, differently conducted.

They commenced with an analysis of the constituents of sea water, the nature and quantity of its saline parts were accurately determined, and this first step, naturally developed the means best adapted, for rendering sea water fit for washing.

The presence of the earthy salts called muriates of lime and magnesia, were found to offer the chief obstacles:— they necessarily decompose soap from the superior affinity of their acids for the alkali of the latter.

Thus then, as a quantity of soap must in the first instance be destroyed to afford a sufficient supply of alkali to neutralize these acids, (liberating at the same time the fatty base of the soap which attaches to the linen, and thereby increases the difficulty of washing,) it became obvious, that the proper mode of proceeding was to decompose these earthy salts, preparatory to the use of soap.

An alkaline solution of a certain specific gravity was then prepared, and added to a known quantity of sea water, until saturation took place. The quantity of this re-agent sufficient for a gallon, was thus correctly ascertained, and on every trial, it always produced similar results.

On its introduction into the service of the royal navy, it was hailed as a most useful discovery, conferring an important benefit on the seamen, and affording great facility to the maintainance of cleanliness on ship-board, so essential to health! but unfortunately the state or form in which this re-agent was then prepared and confided to the care of seaman, (who are ever fearless of danger, and too often neglect the precautions given to avert it) occasioned some accidents, which ultimately led to its disuse.

The alkaline solution in a caustic and very concentrated state was liable to be spilled, and falling on wounds or cuts, would, of course, create pain and excoriation; some few occurrences of this nature soon operated to lessen its utility in the estimation of one of the Government Boards, and its further supply was ordered to be discontinued.

Though deeply disappointed, my efforts were nevertheless unremitted, to free the application from every objection. During the course of very harassing investigations, I learnt that one of the usual processes in washing on board of ship, consists in the use of urine and pipe clay, which latter they scrub with a brush on the surface of the linen, and finally rinse in the surrounding sea water.

To supersede a practice so odious, so filthy, and altogether so inadequate to the purpose, I conceived the idea of employing an earthy base more saponaceous than pipe clay, which, while it should act as a detergent, might at the same time become a useful vehicle for the absorption of the alkaline solution, and form therewith a paste in a tangible state, safe to handle, easy of measurement, and readily diffusible in sea water.

The process described in the specification above, prepares the composition on this principle, and completely answers the intended purpose.

On the admixture of this paste, with its due proportion of sea water, a thick cloudiness is perceptible, arising partly from the earthy base of the composition, and partly from the liberation of the earths of lime and magnesia, constituents of the muriates. These, in a state of mixture, are suffered to subside, and the clear water afterwards separated either by a syphon, decantation, or filtration, as happens to be most convenient. The earthy deposit may then be more efficaciously employed than pipe clay, in all cases where the latter had formerly been used, and the clear sea water may be advantageously applied for the removal of these earths, should any adhere to the clothes, and for finishing the wash with soap, in the way usually practised by laundresses. Should facilities exist for the purpose, the sea water would answer best if previously heated, the precipitation of the earths would be accelerated, and the operations more effectual and expeditious; but under every possible disadvantage, cold sea water may still be successfully used.

Passengers and others proceeding on long voyages, whose garments are usually of a finer quality than those of common sailors, should only use the clear sea-water, and reject the sediment, as inapplicable to their wants, this will enable them to perform a wash with as much neatness and effect as is done on land; and they may rest assured, that the apprehensions hitherto entertained of catching cold from the dampness of linen washed in sea-water, are quite groundless in this instance; for the earthy salts, so attractive of moisture in their natural state, being decomposed and separated, can no longer produce such effects, and the salts which actually do remain in solution, possess no such deliquescent property.

The second object of the patent is a composition for washing in fresh-water.

The resin here employed as its base, has, it is true, been used before, though in a very limited proportion (perhaps from an eighth to a sixteenth part) in combination with fats and oils to compose a soap, known in commerce as yellow soap; but it has always been confined to this description of soap, and never before formed into a binary compound, to the entire exclusion of all fats or oils in the composition. Soap, in fact, may be defined to be a ternary compound, consisting of fat or oil, an alkali, and water; any substance added to these, is only extraneous, and put in either with a view of adulteration, or to give a particular character or quality to the soap; the above resinous compound, therefore, cannot possibly come under the designation of soap, differing so essentially as it does in its constitution and appearance; it nevertheless possesses properties in common with soap, such as perfect solubility in water, and even a greater degree of detergency.

This latter quality and its low price must particularly recommend it to the consideration of those whose consumption of soap is extensive; and in all cases where economy becomes an object."

[*Inrolled July*, 1826.]

Novel Inventions.

Wright's New Invented Crane.

THE notice in our last number of this ingenious invention, has called forth, as might reasonably be expected, considerable animadversion from among our readers. We are gratified in its having so done, because unlike the mass of periodical literature, which seems licenced to propogate the most absurd extravaganzas under the blushing head of SCIENCE, our Journal is expected to be the vehicle of such information as may claim the critical attention of its readers.

In asserting that "extroardinary properties in this peculiar combination of mechanical powers appear to shake the old established axiom that power can only be increased at the expense of velocity," we certainly did not mean to deny the truth of that axiom, which cannot be overturned, but it will be seen we spoke comparatively, "for this crane does actually raise heavy weights with less than half the power of the best constructed crane heretofore used, and with the same or even greater velocity."

Now when the construction of this crane is laid before the public, it will be seen, by what peculiar combination of machinery the advantage is gained over other cranes: for that an advantage is gained, appears very obviously in the facility and small power by which it is worked, compared to other cranes at present in use.

We have not asserted that any hitherto unknown principle in mechanics has been discovered,—that any new mechanical power has been invented, but merely that by a very novel and ingenious combination of machinery, a crane has been constructed, without wheel or pinion. (toothed wheel of course we mean), which is worked with small power compared to other cranes. If it is true according to the generally received opinion, that two men will raise six hundred weight, (and no more upon an average), at the rate of ten feet per minute, by any of the known simple combinations of wheel and pinion, or other mechanical powers, then we say we prove our position that Wright's crane gains upon that estimate, nearly, if not more than double.

Three labourers have been for some time employed at one of these cranes in Mr. Wright's factory, two of them constantly at work, relieving each other during the day, and continually raising and lowering a weight of one ton, and thirteen pounds, at the rate of twelve feet per minute. This certainly is a demonstrative proof of the facility with which the crane is worked; for though by extraordinary exertions, powerful men may perform great feats, (as we have seen the patentee himself alone raise this weight with apparent ease), yet the continuance of the labour throughout a whole day, is a very fair criterion of the fact, that much more may be done with this crane than with others heretofore used.

By a communication sent to us from some person probably interested, it appears that one of the weekly periodicals have inserted a very lame description of this invention, with an imperfect sketch of its construction, obtained by stealth through some of the work people connected with Mr. Wright's factory, and that this account has also been accompanied with some ignorant remarks, calculated to depreciate the merits of the invention, and injure the patentee. However reluctant we may be to occupy our pages with such discussions, we cannot with propriety

Wright; he might have seen the Crane at work, and learnt particulars of its power and speed, which, it is quite obvious, the labourers and inferior officers of the West India Docks, would not give him, as these people are very jealous of any thing, which, by lessening their numbers, may also lend to lessen the expenses of the establishment, and the information must have been attained there by stealth, and in opposition to the regulation of the Directors, who have ordered that, no strangers shall see the Cranes while being fitted and fixed."

These facts will we hope lead the public to suspend giving credit to crude remarks, apparently arising out of personal animosity. We shall in our next be able to give the particulars of a trial which is about to take place by order and under the inspection of the West India Dock Directors, in which Mr. Wright's Cranes are to be worked against the best common cranes in their establishment, and we have no doubt the result will support our opinion of Mr, Wright's talent and judgment.

A new Steam, and Heated Air Engine. By MINUS WARD, *Civil Engineer, Baltimore.*

Mr. Ward having recently received from Europe his patent for his new engine, wishes to lay before the public an extract from his specification, which will describe the principle of its action.

Specification of new and economical methods of using heated air, gases, elastic fluids, and products of combustion, which are available to the increase of steam power.

THESE consist in employing or using, in whole or in part, the air which is heated while passing through the fire of the furnace attached to the steam engine, together with the heated gases, elastic fluids, or products, set at liberty, or given out by the burning fuel in the same. By means of sundry apparatus and machinery, which are added or affixed to the steam engine, to force or throw into the boiler, either below or above the surface of the water in the same, the aforesaid heated elastic fluids, or products of combustion, thereby causing them to mix or unite with the steam. Thus availing myself of the caloric and agents, which are ordinarily suffered to escape through the flue or chimney into the atmosphere, and are lost. This may be put into practice by an indefinite variety of methods.

One method is, to place a pneumatic forcing pump, which we will call the gas-pump, on the top of the boiler of the steam engine; a pipe, or tube extends up from the furnace below, through the water and steam in the boiler, and enters the bottom of the gas-pump chamber, where there is a valve opening upwards. By the side of this valve, there is another valve opening downwards, into the cavity of the boiler. The piston of the gas-pump is driven by the engine. From the upper part of the boiler, commonly called the steam-chamber, a pipe extends to the steam, or working cylinder of the engine, which cylinder is of a construction no way different from that of the steam engine in common use.

Operation.—As the piston of the gas-pump rises, the valve which opens upwards will be forced open by the laws of atmospheric pressure, causing the heated elastic fluids, and products of combustion to follow the piston. The other valve being kept closed by the pressure of the steam in the boiler, the heated air, gases, and other heated products of combustion, rise from the burning fuel in the furnace, and passing up through the pipe and the valve, fill the chamber of the gas-pump; the cubic contents of which may be to those of the steam, or working cylinder, as 169 to 256, or thereabout. On the descent of the piston, the inlet valve closes, and as soon as the descent of the piston, by compressing the heated air, gases, and other heated products of combustion contained in it, causes their elastic force to become greater than the elastic force of the steam in the boiler, the valve in the boiler opens, and the contents of the gas-pump are driven into the boiler, at a temperature nearly equal to what it was in the furnace; where, coming to an actual contact, and mixing with the steam, they give out a portion of their caloric to the steam, and the temperature of the mixture, will be higher than was that of the steam, before the injection of said gases. The increased temperature, will cause a corresponding increase of the elastic force, the mixture of steam and other heated elastic fluids thus formed, passes on to the working cylinder of the engine, where, after acting by their pressure upon the piston of that cylinder, they are either suffered to escape into the atmosphere, or they are conveyed to a condenser, where the steam and aqueous parts of the mixture are condensed, in the same manner as steam in condensing engines. The water thus formed, the injected water, with the air, gases, &c. are pumped out together. The above arrangement of parts has been specified on account of the ease with which it may be understood.

Another modification, is to immerse the gas-pump in the boiler, with its upper flange upon the top of the boiler. A tube, open at both ends, extends from near the upper part of the steam chamber, internally down along the side of the gas-pump, and enters the bottom of the same. By this arrangement, as the piston of the gas-pump rises, the chamber below the piston will be filled with steam, an as no valves are placed in this tube on the ascent of the piston, this steam will be returned into the steam chamber, the use of this is to keep the packing of the gas-pump continually damp, so as to prevent its being burned. The inlet and outlet valves are placed upon the top of the pump, the piston rod working through a stuffing box; a tube extends from the furnace, to the inlet valve, and another tube extends from the outlet valve, to the steam chamber. The gas-pump may be also placed, externally, on the end, or side of the boiler, and be a double acting pump, with a pair of valves, as before described, at each end thereof. In this plan, an elastic metallic piston may be adapted, one method of making which, is to substitute for the packing of hemp, a packing, or gasket of card-wire, which is applied in the same manner as the packing of hemp.

In the above methods, if it be intended to take into the gas-pump, a larger part, or the whole of the heated elastic fluids, and products of combustion, a damper, or valve may be placed in the flue or chimney, above the tube leading to the gas-pump; which damper, after the engine is in operation, may be totally, or partially closed. If it be entirely closed, the draught and the consumption of the fuel in the furnace will be in proportion to the capacity of the gas-pump, and the number of strokes made by its piston in a given time. *Franklin Journal.*

Notice of a new application of metals as a coating for Iron, Steel, Copper, &c. And also, of a new Gold coloured metal, manufactured in Italy. Extracted from a letter written by Thomas Appleton, Esq. American Consul at Leghorn, to James Mease, M.D. of New York.

"A FRIEND of mine has invented a metallic alloy, which is applied with ease, and at little expense, to all kinds of iron work, and which effectually protects it, for ever, from rust; it amalgamates with the iron, penetrating it to some depth. The colour approaches to that of plated ware. Wherever there are defects in the iron, from the presence of earthy particles, or other causes, the application will not seize on such parts, but forms a perfect covering wherever the metal is sound, from which it never separates. The invention has been approved by the academies of Paris, Turin, Milan, Rome, and Bologna, where the inventor has obtained patents. I have pieces of iron, which have been buried in the earth for several months, without any other effect than the tarnishing the surface in a slight degree, and which is readily removed by rubbing with fine sand and water. It forms a beautiful covering, for iron bedsteads, rails, or gates, and indeed almost every kind of iron work.

"A company is formed at Bologna, with a capital of 100,000 dollars, for coating iron work, and they are now drawing out plates, to form, if I may so say, a new species of tin plate, very superior to the old kind; for the metallic application adheres so firmly, that the work when broken, may be re-heated, and joined as easily as any other iron, without injury to the coating, which is not the case with tin. I send you a printed prospectus from the manufactory, and in order that you may have a more perfect conception of the thing, I send you two iron bedsteads, highly filed, and covered with the composition. I purchased them for this express purpose, the price, at the manufactory, is fifty dollars each, with their pillars, ornaments, &c.

"The inventor sends you, as a further sample of his coated iron, a little sofa, about 18 inches in length. It is the exact model of one sent to our Grand Duke a few days ago.

"Four ounces of metallic composition, is sufficient for covering a bedstead; twelve ounces are valued at about a dollar and fifty cents. My pen-knife, and scissors, are covered with it, and their edges in no wise injured.

"I now call your attention to another invention of the same individual, not, perhaps, so essentially useful, but nevertheless, very beautiful and ornamental. This is a yellow metal, so perfectly resembling pure gold, that my snuff box, which is made of it, has certainly never been suspected to be other than the purest gold; it is of the same weight, within a fraction, and answers on the touchstone, to gold of 18 carats—it can be made like that of 24. This metal also is included in the manufactory at Bologna. They make there metal buttons, which are as beautiful as those most highly gilt, when new, but they have this preference, that they are eternal, and may be left to your your children's children, as they are made of the solid metal, of the same colour throughout. Gilt buttons, you well know, lose their covering of gold, and leave a disgusting disc of brass, before the coat is half worn out. This is strikingly the case with the buttons of our naval officers. Those of the new manufactory, may be purchased at 50 cents per dozen. Such a manufactory would be of essential importance in the United States; and very beneficial to any manufacturer who should procure the art of compounding the metal. The inventor sells it to the manufactory at Bologna, at two dollars and sixty cents for the pound of 12 ounces, which quantity will make nine dozen of coat buttons. But it is not confined to the making of these, but is used for watch cases, and every sort of ornament to which gold is applicable; I have in use, desert knives and forks, and fruit and coffee spoons, which are truly beautiful. This metal the inventor calls ARTIMOMANTICO, as you will see by the prospectus.

"In order that you may see and believe, I send you three desert sets of this metal, in all 144 pieces; they cost here 40 dollars the set.

"The inventor, who is my particular friend, informs me that he would sell the art, which is possessed by no one but himself; the ingredients, he says, are simple, and found in every country. To me, it appears a thing of great importance, and should any of my countrymen wish to embark in it, I would lend all the aid in my power."

The prospectus which accompanied the foregoing account, adds but little to the information contained in the letter, we will however, make one extract, which is as follows:

"This application is a kind of mixture, resulting from the union of many metals, and which possesses the important property of refusing to unite with oxygen at common temperatures, or even when artificially heated. It does not increase the thickness of the article to which it is applied, for whilst it incorporates with the whole surface, it does not cover the marks of the finest file, or in the slightest degree efface letters or other marks. It does no injury to the temper of knives, nor can it be distinguished by the touch, on a piece of metal, to one half of which it has been applied."

We have examined the bedsteads, and the articles of imitation gold, which have arrived in this city, the former are deposited in the cabinet ware room of Cook and Parkin, Walnut, between Third and Dock streets, and the latter at Lewis Vernon and Co.'s store, Chesnut, near Third street, where they may be seen.

With respect to the material with which the iron is coated, it appears to us to be an alloy similar to some of the compositions of hard pewter, and we think that it would require but few trials, to enable some of our intelligent workmen to imitate it perfectly.

The articles of *Artimomantico,* or gold coloured metal, are not fashioned to the taste of this country, but the object in sending them, was principally to shew the colour and texture of the composition. The greatest objection to it, appears to us to be its softness, as we found that it would bend from the application of a very slight force.

This alloy, it appears, was patented in France, in the year 1814, the patent there, must therefore nearly, or quite have expired, and the process have become public property; and of course, should the alloy, upon thorough investigation be found valuable, its composition may be known. We have seen many articles of gold coloured metals, both from France and England, quite equal in appearance to that in question, and superior in hardness; they however usually tarnish readily, and should the Italian compound be as free from this defect, as the account of it declares it to be, its superiority will depend upon this property.—*Franklin Journal.*

Polytechnic and Scientific Intelligence.

ROYAL SOCIETY.

(Continued from page 105.)

April 5.—The reading of Dr. Thomson's paper commenced on the preceeding evening was now concluded, the principle object of which was to describe a singular compound of chromic acid, and chlorine. The society then adjourned.

26.—Dr. J. Blackman was admitted, and H. R. H. the Duke of Clarence elected a fellow of the Society. A paper by R. Woodhouse, Esq. of Cambridge, was read on the derangement of certain astronomical instruments by the effects of temperature.

May 3.—A paper by Peter Barlow, Esq. of Woolwich was read, exhibiting certain rules and principles for determining the dispersive ratio of glasses, and for computing the radii of curvature for achromatic object glasses, submitted to the test of experiment.

10.—A paper by A. P. Wilson Philips, M.D. was read containing observations on the effects of dividing the nerves of the lungs, and submitting them to the influence of voltaic electricity. A paper was also read on changes in the plumage of some hen pheasants, by W. Yarrell, Esq. by this paper it seems that changes in the external appearance of the male and female birds arises from disease in the sexual organs, and that the habits and plumage of both under these circumstances, occasionally approach to a great resemblance of each other.

17.—A paper by P. Barlow, Esq. was read on the secondary deflexion produced in a magnetic needle by a iron shell, in consequence of unequal distribution magnetism in its two branches ; discovered by Captai

Wilson, R. N. and a paper also by T. Henderson, Esq. was read on the difference of the meridians of Greenwich and Paris.—A letter was likewise read from Mr. Rumber, of Paramata, New South Wales, detailing a variety of observations made there relating to the heavenly bodies.

24.—The Right Hon. C. W. W. Wynne was elected, and a paper was read on a mode of destroying fire-damp in mines, by the chloride of lime, by F. Fincham, Esq.—A paper was also read on some peculiar properties of heat, by R. W. Fox, Esq.

31.—E. W. Pendarvis, Esq. M.P., Lieut. Col. Miller Major Gen. Wavell, and Dr. Harwood, were admitted fellows of the Society. A paper by J. Walker, Esq, was read, on the resistance of fluids to bodies passing through them. Also a paper by Capt. Sabine, R.A. on the corrections of the pendulum depending on the value of the divisions of the level of the small repeating circle as recently ascertained by the experiments of Capt. Kater. A paper was likewise read on effects produced on the air cells of the lungs when the circulation is too much increased, by Sir H. Home, Bart.

American Patents

GRANTED IN THE UNITED STATES IN 1826.

FOR INVENTIONS AND IMPROVEMENTS.

In the windmill; to Moses Padley, New York, Aug. 31st.

In hydraulics, called the relieving valve; to William Lanphier, District of Columbia, Sept. 2d.

NOTE.—It had been our intention to publish regularly a list of all the Patents granted in the United States, but from some cause the list has not been regularly supplied from the office. There is an omission from the 14th September to the 1st of November, which we are unable a present, to fill up, but hope to do so shortly.

In the trip hammer; Philip Petts Read, Mercer, Maine, Dec. 7th.

In a self-feeding brick press; John Winslow, Portland, Maine, Dec. 8th.

In the circular re-acting saw; William Avery, Cazenovia, New York, Dec. 8th.

In the paddle wheel for propelling boats; Wm. F. Kearsing, New York, Dec. 8th.

In distilling all kinds of liquor; Norman and Anson Wolcott, Bloomfield, N. York, Dec. 8th.

In the mode of sawing veneers, &c.; John P. Atten, Manchester, Mass, Dec. 8th.

In the thrashing machine; James Hyde, Pembroke, New York, Dec. 9th.

In the mode of propelling boats and vessels; John James Girard, Baltimore, Dec. 12th.

In the mode of manufacturing wool, &c. John Goulding, Dedham, Mass. Dec. 15th.

In a kiln for drying and curing tobacco; Edmund Pendleton, Louisa County, Vir., Dec. 18th.

In the machine for pressing cheese, cider, &c. Lebbeus Caswell, Harrison, Maine, Dec. 18th.

In the machine for breaking hides; Hezekiah S. Clark, Randolph county, N. C. Dec. 22d.

In the machine for manufacturing slate; J. M. Porter, and P. S. Maltes, Easton, Penn. Dec. 22d.

In the mode of drawing lotteries; John C. Rives, Washington, D. C. Dec. 22d.

In the machine for planing boards; Herman Atten,******* Dec. 22d.

In the machine for planting cotton, corn, &c. John Lobdell, Warren county, Mis. Dec. 26th.

In heating and boiling water, &c. George J. Payne, Lockport, New York, Dec. 27th.

In the machine for pressing and packing cotton; James H. M'Chelland, Fairfield District, S. C. Dec. 28th.

In the machine for making the hubs of wheels; Isaac Willbur, Madison, New York, Dec. 28th.

In a revolving timber plane; Daniel N. Smith, Warwick, Mass. Dec. 28th.

In the marine rail way; Richard Ward, New York, Dec. 28th.

In making hats by the application of steam; William Harkins, Wheeling, Virginia, Dec. 29th.

In the machine for spinning wool, cotton, &c. Seth Boyden, Foxborough, Mass. Dec. 29th.

In the pendulum motion for machinery; Justin Jacob, Monveal Canada, Dec. 29th.

In the evolution and management of heat; Eliphalet Nott, Schenectady, New York, Dec. 29th.

In bedsteads; Samuel Davis, Catskill, New York, Dec. 29th.

In the construction of fire places, furnaces, &c. John W. Bott, and William Lyman, Boston, Dec. 29th.

In the lithontriptor; Isaiah Lukins, Philadelphia, Dec. 30th.

In the machine for grating corn, apples, &c. Camm Moore, Guilford county, N. C. Dec. 30th.

In a revolving coal sifter; Thomas Borbidge, and Anson Martin, Kingston Township, Penn.

In the machine for pressing hay, cotton, &c. David Flagg, and Charles Peck, Gardiner, Maine.

New Patents Sealed, 1827.

To Joseph Hall, and Thomas Hall his son, both of Leeds, in the county of York, braziers and brass founders, for their having found out or discovered an improvement in the making and manufacturing of metallic cocks for drawing off liquids—Sealed 11th October—6 months.

To Elias Carter, of the city of Exeter, in the county of Devon, upholsterer, for his having invented a new covering for the roofs of houses and other buildings—11th October—6 months.

To Joshua Horton, of West Bromwich, in the county of Stafford, boiler maker, for his invention of a new and improved method of forming and making of hollow cylinders guns, ordnance retorts, and various other hollow and useful articles, in wrought iron, in steel, or composed of both those metals—11th October—6 months.

To Goldsworthy Gurney, of Argyll-street, Hanover-square, in the county of Middlesex, surgeon, for his invention of certain improvements in loco-motive engines and other applications connected therewith—11th October —6 months.

To James Stokes of Cornhill, in the city of London merchant, for his invention of certain improvements in making, boiling, burning, clarifying, or preparing raw or Muscovado bastard sugar and molasses—11th October—6 months.

To John Wright, of Princes-street, Leicester-square, in the county of Middlesex, engineer, for his invention of certain improvements in window sashes—11th October—6 months.

METEOROLOGICAL JOURNAL, FOR SEPTEMBER AND OCTOBER, 1827.

1827.	Thermo.		Barometer.		Wind.	Weather.
	Max	Min.	Morn.	Even.		
SEPT.						
25	65	50	29,53	29,49	S.—W.	Clo.—sun—wind Aurora Borealis
26	66	54	29,49	29,45	S E.	Ditto—rain .42
27	69	56	29,48	29,57	S.	Cloudy—sultry
28	65	53	29,56	29,58	S.—S. E.	Ditto—damp
29	60	54	29,54	29,56	S. E.	Rain 37
30	66	55	29,62	29,63	S. E.	Cloudy
OCT						
1	64	55	29,64	29,68	S. E.	Ditto—slight rain
2	67	52	29,72	29,91	S. E.	Fair—clear
3	63	50	30,02	30,12	E. W.	Ditto—fog
4	63	49	30,17	30,18	E.	Fair
5	67	52	30,18	30,11	E.	Ditto—fog
6	62	47	30,02	29,86	N. E.	Ditto—ditto
7	58	42	29,83	29,68	N. E.	Ditto—ditto
8	60	47	29,54	29,29	S. E.	Cloudy—rain .12
9	61	53	29,20	29,11	S. W.	Ditto—ditto .53
10	55	49	29,24	28,84	E.—N.E.—S W	Rain .66—wind—lightning
11	55	46	29,07	29,08	S.W.	Ditto slight—cloudy
12	54	42	29,20	29,34	W.—S. W.	Cloudy—wind
13	56	40	29,34	29,39	W	Fair clear
14	57	46	29,55	29,65	W	Ditto—Cloudy
15	64	49	29,73	29,74	S. W.	Ditto—ditto—sun
16	62	52	29,74	——	S. W.	Cloudy— damp
17	63	46	29,71	29,68	S.	Fair—Clear
18	63	45	29,62	29,61	S	Ditto—ditto
19	63	51	29,61	29,65	S. E.—S.	Rain 50
20	61	55	29,61	29,55	S. E.—W.	Ditto .75
21	60	52	29,50	29,36	S. E.	Cloudy—damp
22	60	52	29,24	29,06	S. E.	Ditto— rain .50
23	60	49	29,29	29,23	S.W.—S.—S. E.	Cloudy—damp
24	61	50	29,45	29,78	S. E.—S.W.	Ditto—ditto—sun
25	58	50	29,84	29,85	S W.—W.	Ditto—rain .25

HITCHIN HERTS. WATSON PERKS.

LITERARY AND SCIENTIFIC NOTICES.

PART VII, of Mr. Cooke's highly interesting work, "London and its Vicinity" has been published, and is fully equal to the other portion of the work previously published, among the contents will be found a View of the Suspension Bridge, lately opened at Hammersmith, from a drawing by Harding, making a very picturesque subject, and a view of the works of the New London Bridge, from a picture by Stanfield, also a Street View of Harrow on the Hill. This work though not so highly finished as the Coast Scenery, and Views up the Thames, by the same Artist, are deserving of the most extensive patronage, for the fidelity of the representations, and the neatness and spirit of their execution.

In the press, in post 8vo. an Historical Antiquarian, and Picturesque account of Kirkstall Abbey. The work will be embellished with finished engravings, from Original Drawings, by W. Mulready and C. Cope.

NATIONAL GALLERY.—The Marquis of Stafford has presented the fine painting in his possession, by Sir Peter Paul Rubens, to the National Gallery. The subject of this splendid picture is "The Allegory of Peace and War," it was formerly possessed by the unfortunate Charles the First, and for which he paid four thousand guineas. Such a magnificent present reflects the highest honour on the noble donor.

Mr. Bakewell has nearly ready for publication a third edition of his introduction to Gealogy, greatly enlarged, embracing all the recent discoveries in Geology, together with numerous Geological observations, made by the author in various parts of the Continent, and in Great Britain, since the last edition was published.

Messrs. Thomas and William Daniel R. A. have issued proposals for publishing a work under the patronage of the Royal Asiatic Society of Great Britain and Ireland, bearing the title of "Illustrations of India." The above artists, during a Ten Years residence in India, executed several thousand drawings illustrative of the Architecture, Antiquities, Costumes, Scenery, and Natural History of this part of Asia, the selection intended for publication will comprise about ninety Plates, in quarto, accompanied by descriptions in French and English. This work promises to be of a very interesting character.

A small volume has just appeared, entitled, "A practical treatise on the Blow-pipe in chemical and mineral analysis, including a systematic arrangement of simple minerals adapted to aid the student in his progress in minerology, by facilitating the names of species, by John Griffin, author of Chemical Recreations, (Glasgow). The work contains a great deal of useful matter, connected with chemical analysis and an historical sketch of the Blow-pipe, and the particular merits of the several constructions, to the last improvement by Gurney.

Part V of the Views of Hanoverian and Saxon Scenery, from the drawings of Captain Batty, has been published in every way keeping up the high character of this eminently beautiful work. The Views contain the Dom Kirche, Lubeck a very interesting picture, the Oker, Thul Harz singularly picturesque, Quedlinburg and Waldeck, and the ruins of Hardenberg Castle are pleasing subjects the whole of which are engraved in the same masterly style, as the preceding efforts of the same artists, in the early numbers of this work.

Dr. Olinthus Gregory has in the press memoirs of the life, writings, and character, literary, professional and religious, of the late John Mason Good, F. R.S. principal contributor to the Pantalogia, author of the memoirs of the life and writings of the Rev. Alexander Goddes, L. L. D. and translator of the book of Job from the Hebrew, &c. &c. the above will contain numerous selections from his unpublished papers.

THE

London

JOURNAL OF ARTS AND SCIENCES.

No. LXXXVI.

Recent Patents.

To GEORGE HENRY LYNE, *of John Street, Blackfriars' Road, Machinist and Engineer, and* THOMAS STAINFORD, *of the Grove, Great Guildford Street, Southwark, Smith and Engineer, for their Invention of certain Improvements in Machinery for making Bricks*

[Sealed 23rd August, 1825.]

THIS is a machine for making a considerable number of bricks at one operation. It consists in the first place, of a cylindrical pug-mill of the kind usually employed, with rotatory knives or cutters, for breaking up the clay, and mixing it with the other materials of which bricks are constituted: Secondly, of two moveable moulds, in each of which fifteen bricks are to be made at once; these moulds being caused to travel to and fro in the machine, for the purpose of being alternately brought under the pug-mil to be filled with the clay, and then removed to situations where plungers are enabled to act upon them: Thirdly in a contrivance by which the plungers are made to descend, for the purpose of compressing the material, and discharging it from the moulds in the form of bricks: Fourthly, in the method of constructing and working trucks which carry the receiving boards, and conduct the bricks away after they are formed.

Plate IX, fig. 1, exhibits the general construction of the apparatus, both ends of which being exactly similar, little more than half of the machine is represented; *a*, is the cylindrical pug-mill, shewn partly in section, which is supplied with the clay and other materials from a hopper above; *b*, *b*, are the rotatory knives or cutters, which are attached to the vertical shaft, and being placed obliquely, press the clay down towards the bottom of the cylinder in the act of breaking and mixing it as the shaft revolves The lower part of the cylinder is open, and immediately under it the mould is placed in which the bricks are to be formed. These moulds run to and fro upon ledges in the side frames of the machine; one of the moulds can only be shewn by dots in the figure, the side rail intervening: they are situate at *c*, *c*, *c*, *c*, and are formed of bars of iron crossing each other, and encompassed with a frame. The mould resembles an ordinary sash window in its form, being divided into rectangular compartments, (fifteen in each is proposed) of the dimensions of the intended bricks; but sufficiently deep to allow of the material being considerably pressed in the mould, so as to leave it when discharged of the usual thickness of a common brick.

The mould being open at top and bottom, the material is enabled to pass into it when situate exactly under the cylinder, and the lower side of the mould when so placed is to be closed by a flat board *d*, supported by the truck *e*, which is raised by a lever and roller beneath, running upon a plain rail with inclined ends.

The central shaft *f*, is kept in continual rotatory motion by the revolution of the upper horizontal wheel *g*, of which it is the axis, and this wheel may be turned by a horse yoked to a radiating arm, or by any other means. A part of the periphery of the horizontal wheel *g*, has teeth, which are intended at certain periods of its revolution, to take into a toothed pinion, fixed on the top of a vertical shaft *h*, *h*. At the lower part of this vertical shaft, there is a pulley *i*, over which a chain is passed that is connected to the two moulds *c*, and to the frame in which the trucks are supported; by the rotation of the vertical shaft, the pulley winds a chain, and draws the moulds and truck frames along.

The clay and other material having been forced down from the cylinder into the mould, the teeth of the horizontal wheel *g*, now comes into gear with the pinion on *h*, and turns it, and the shaft and pulley *i*, by which the chain is wound, and the mould at the right hand of the machine brought into the situation shewn in the figure— a scraper or edge bar under the pug-mill having levelled the upper face of the clay in the mould, and the board *d*, supported by the truck *e*, formed the flat under side.

The mould being brought into this situation, it is now necessary to compress the materials, which is done by the descent of the plungers *k*. A friction roller *l*, pendant from the under side of the horizontal wheel, as that wheel revolves, comes in contact with an inclined plane, at the top of the shaft of the plungers, and as the friction roller passes over this inclined plane, the plungers are made to descend into the mould, and to compress the material; The resistance of the board *d*, beneath, causing the clay to be squeezed into a compact state. When this has been effectually accomplished, the further descent of the plungers brings a pin *m*, against the upper end of a quadrant catch lever *n*, and by depressing this quadrant causes the balance lever on which the truck is now supported, to rise at that end, and to allow the truck with the board *d*, to descend, as shewn by dots; the plungers at the same time forcing out the bricks from the mould, by means of which they are deposited upon the board *d*; when by drawing the truck forward out of the machine, the board with the bricks may be removed, and another board placed in the same situation. The truck may then be again introduced into the machine, ready to receive the next parcel of bricks.

By the time that the discharge of the bricks from this mould has been effected, the other mould under the pug cylinder has become filled with the clay, when the teeth of the horizontal wheel coming round, takes into a pinion on the top of a vertical shaft, exactly similar to that at *h*, but at the reverse end of the machine, and causes the moulds, and the frame supporting the trucks to be slidden to the left end of the machine; the upper surface of the mould being scraped level in its progress in the way already described. This movement brings the friction wheel *o*, up the inclined plane, and thereby raises the truck with the board, to the under side of the mould, ready to receive another supply of clay, and the mould at the left hand of the machine being now in its proper situation, under its plungers, the clay becomes compressed, and the bricks discharged from the mould in the way described in the former instance; when this truck being drawn out, the bricks are removed to be dried, and baked, and another board is placed in the same situation.

There are boxes *p*, on each side of the pug cylinder, containing sand, at the lower parts of which small sliders are to be opened, (by contrivances not shewn) as the mould passes under them, for the purpose of scattering

Howard's Vapour Engine

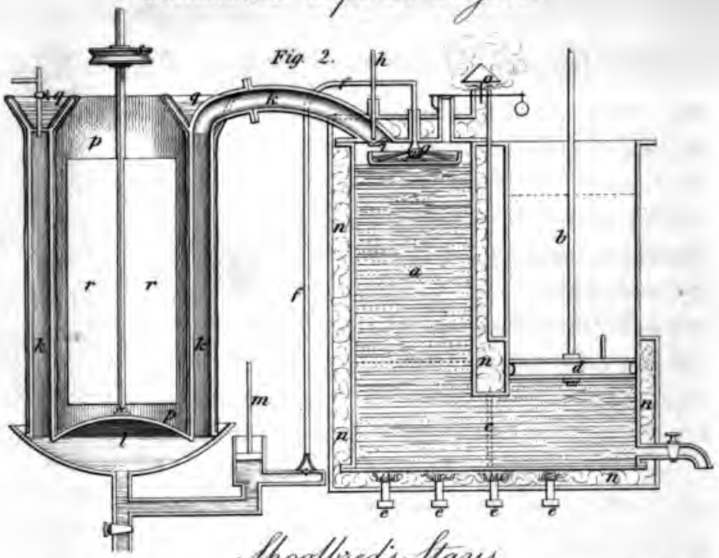


Fig. 2.

Shoolbred's Stays

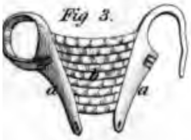


Fig 3.

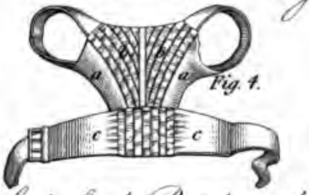


Fig. 4.

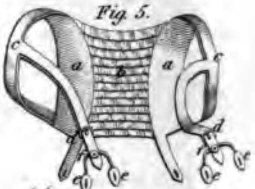


Fig. 5.

Lyne & Stainford's Brickmaking Machinery

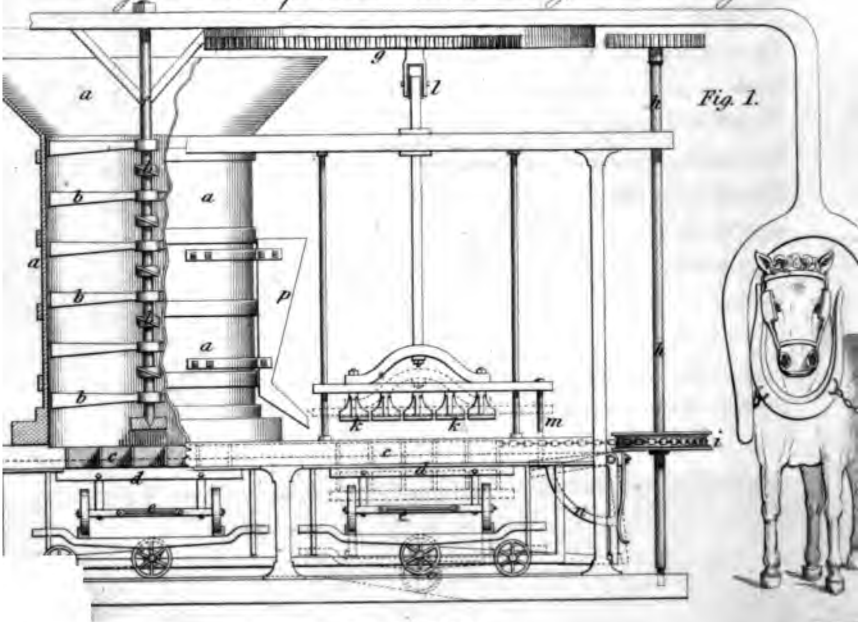


Fig. 1.

sand upon the clay in the mould, to prevent its adhering to the plungers. There is also a rack and toothed sector, with a balance weight connected to the inclined plane, at the top of the plunger rods, for the purpose of raising the plunger after the friction roller has passed over it. And there is a spring acting against the back of the quadrant catch, for the purpose of throwing it into its former situation after the pin of the plunger has risen.

[*Inrolled February,* 1826.]

To Thomas Howard, *of New Broad-street, in the City of London, Merchant, for his having Invented an Engine, which he intends to call or denominate a Vapour Engine.*

[Sealed 13th October, 1825.]

This is an apparatus, consisting of two chambers communicating with each other, which chambers contain a heated fluid; one of them being closed at the top, and the other open, with a piston floating upon the fluid in the open chamber. Into the vessel with the closed end, a small quantity of ether or other volatile liquid is to be injected, which coming in contact with the heated fluid, is immediately converted into an elastic vapour, and this vapour expanding between the heated fluid and the closed top of the vessel, forces the heated fluid out of the first chamber into the second, and by so doing, raises the piston in the second chamber. A valve being now opened, the vapour is let off into a refrigerator to be condensed, and the heated fluid returning again to occupy the vacuum, causes the piston now to descend. Thus a reciprocating action is given to the piston, which by means of its rod may be communicated as the working power for actuating any kind of machinery.

Plate IX, fig. 2, is a section of the apparatus; *a*, *b*, are two chambers, with an open communication between them at *c*. These two chambers are to be rather more than half filled with oil, or some other fluid, which can sustain a considerably high temperature without evaporating. A piston *d*, is to be introduced into the open chamber *b*, where it is intended to float upon the surface of the oil, and the upper part of the chamber *a*, being exhausted of air, by means of an air pump, the oil will immediately flow nearly to the top of it, the piston in the other chamber, descending by the pressure of the air above it.

The apparatus being thus prepared, a number of lamps *e*, *e*, *e*, are to be lighted under the vessels *a*, and *b*, containing the fluid, by means of which the fluid will become considerably heated. A small quantity of ether or any other highly volatile liquor, is now to be injected from the pipe *f*, into the upper part of the closed chamber *a*, which passing through the jet *g*, falls upon the surface of the heated liquor, or upon a metal dish floating upon it, and is immediately converted into elastic vapour. This vapour expanding, will by its mechanical force, drive the heated oil nearly to the bottom of the chamber *a*, raising the oil and the piston in the other chamber *b*, the two surfaces of the oil being now about the level of the dotted lines.

In order to produce the returning stroke of the piston, the small rod *h*, is to be depressed, which may be done by any simple contrivance, connected to the working part of the engine. This rod *h*, has an hemispherical end, which striking into a recess on the upper side of a valve *i*, causes that valve to open, when the vapour instantly rushes through the pipe *k*, into the refrigerator *l*, and becomes condensed in the bottom of that vessel, the valve closing again at the same time, by a crane-necked spring on its upper side. The heated oil now flows up the chamber *a*, occupying as before the place of the vacuum, and the piston *d*, falls simultaneously into the chamber *b*, to its former situation.

To continue this action of the piston, a small quantity of liquor from the vessel *l*, must be after every stroke injected by an air-pump *m*, through the pipe *f*, and jet *g*, on to the surface of the heated metal or dish in the chamber *a*, and the elastic vapour thus produced as it expands, forces the heated oil from the chamber *a*, into *b*, in the manner described.

The smoke and heat of the lamps *e*, *e*, *e*, is confined by an outer case or jacket *n*, *n*, surrounding the chambers, the vent from which is at *o*. These lamps may be supplied with oil, or they may be gas burners, or any other convenient contrivance may be resorted to, which would heat the chambers *a*, and *b*, sufficiently hot for the purpose.

The condensation of the vapour may be effected by similar means to those commonly employed in working a steam engine, but the patentee prefers to use a refrigerator and condensator of the construction shewn in the figure; *p*, *p*, is a cylindrical vessel, to the bottom of which the pipe *k*, leads from the eduction valve *i*. In this cylinder there are a series of pipes similar to *k*, opening at bottom, from the vessel *l*, into which the vapour rises from the vessel *l*, both sides of these pipes are covered with flannel, which hangs down from a circular trough *q*, *q*. This trough is to be filled with cold water, when by capillary attraction, the water will be conducted by the flannel down the sides of the pipes, carrying off the heat of the vapour, and of consequence assisting in condensing it. In the centre of this cylindrical vessel, a rotatory fan *r*, is placed, which being made to revolve by a pulley and band *s*, a very considerable circulation of air will take place, and still further promote the condensation of the vapour, which descending into the vessel *b*, below, is to be pumped up from thence in jets into the chamber *a*, by the force pump *m*, as described above.

Several variations in the form and construction of the condensator are proposed, but founded upon similar principles; and different modifications of the engine are also suggested. For instance, it is proposed to attach rods to two dishes floating on the two surfaces of the heated oil, and by the ascent and descent of these, to communicate power for working other machinery. It is also proposed to place a rod horizontally with a piston attached to it, which shall work to and fro in a cylindrical vessel immersed in heated oil; at the ends of which vessel, jets shall inject small quantities of the volatile liquor against the heated surface, and by that means, create an elastic force alternately behind and before the piston, giving it the required reciprocating action.

Lastly, the patentee does not confine himself to oil, as the heating medium to be employed within the chambers *a*, and *b*; but intends employing any fluid in that situation which shall be capable of receiving a high temperature, without being driven off by evaporation; nor does he confine himself to either, as the volatile liquor to be employed for generating an elastic vapour, but intends to employ any other liquor that will answer the purpose, even water, which by those means may be converted into elastic steam.

[*Inrolled April*, 1826.]

To Lewis Aubrey, *of Two Waters, in the County of Herts, Engineer, for an Improvement or Improvements in the Web or Wire for Making Paper.*

[Sealed 4th July, 1826.]

This invention is merely a peculiar mode of weaving, the endless web of wire gauze, upon which paper is made in a machine, and the object is to produce by the machine the large water mark lines that cross the sheets of laid paper, which it appears has hitherto only been done in paper made by a hand frame.

The method proposed by the patentee is this:—"The warp is to be put in the loom in the usual way, consisting of small wires according to the number of holes to the inch, as might be required, without the large warp being applied, until the small spaces in the reed are filled agreeable to the width wanted; and when properly fixed at both ends, then a wooden or metal roller, about five inches diameter, and as long as the loom is wide, is to be fixed, resting on two iron bearings at the tail end of the loom, a little distance below the bottom roller, not quite under the centre. This roller must have a groove in it, so as to take a wooden or metal strip, into which roller the same is to be fixed by screws; and the said strip must also contain as many pegs of iron, steel, or other metal, as large water-marks may be required in the sheet of paper, standing about a quarter of an inch out of the roller, above the surface, and divided to answer the large divisions left in the reed, from a quarter of an inch to an inch, and upwards, at equal or unequal distances, as may be desired.

The large warp is then to be placed on to each of the pegs, either circular or otherwise, round the five inch roller, until there is a sufficient length, then each large warp (either circular or otherwise) is to be passed through the front harness, which should be very strong, and placed a little higher in the work than the small harness; from thence they are to be passed through large divisions of the reed, one by one successively. Large divisions are left in the reed for the purpose of receiving the large warp and the ends made fast to a round iron rod half an inch in diameter. Then place the metal roller to lay loose on the large warps, on a level with the bottom of the five inch roller, by which means the whole of the large warps are made equally tight with all of the small ones."

The weaving is then to be done in the usual way, by throwing, to suit the number of holes required, and by means of a strong harness standing higher than the small ones, the large warp is rendered flush with one surface of the wire, and projecting on the other.

The remainder of the specification goes on to state the size of the wires required for certain purposes, which it will not be necessary here to detail, as it must be obvious that according to the size of the large wires, so will be the thickness of the water lines produced in the paper when made.

[*Inrolled September*, 1826.]

For a description of the mode of using the endless wire web sieve, or perpetual mould, see Dennison and Harris's patent, Vol. XII, page 137, and Plate VIII.

To JOHN LOACH, *of Birmingham, in the County of Warwick, Brass Founder, for his having Invented or found out a Self-acting Sash Fastener, which Fastening is applicable to other purposes.*

[Sealed 23rd May, 1825.]

THIS invention is a spring bolt for securing windows that is, preventing them from being opened. The novelty of the contrivance consists in adapting a tumbler to the bolt, which prevents its being withdrawn and the window opened, without the assistance of a key. There are several modes of constructing and adapting this contrivance, which are shewn in the figure about to be referred to.

Plate X, fig. 1, represents one of the fastenings, seen edgewise; *a*, is the plate to be screwed to the side of the sash; *b*, is the bolt secured to a spring *c*, the end of which as the sash slides up and down, comes against the striking plate fixed to the style of the window, and is pressed back with its spring until the end of the bolt arrives at a recess in the striking plate, when the spring shoots the bolt forward into the recess, and the sash becomes locked. Instead of a striking plate with holes, a plate with a rack may be used, into the teeth of which the end of the bolt, being projected, will hold securely.

In opening the window, a key is to be introduced through a small key hole, in the side of the sash, which being turned round, comes in contact with one of the pins of the piece *d*, and presses it back, which acting against the spring *c*, causes the bolt *b*, to be drawn from the recess in the striking plate, and the sash to be unlocked.

Fig. 2, is another mode of applying the same principles; *a*, is the plate; *b*, the bolt, formed at the end of a lever, against the upper part of which a spring *e*, acts, throwing the bolt outwards. The tumbler-piece *d*, has pins or pegs standing out, against which the key is to act in the manner before explained, for the purpose of withdrawing the bolt. Fig. 3, is another mode of constructing the same.

Fig. 4, is a self-fastening bolt, to be attached to the meeting-bar of the lower sash, and intended to shoot into the meeting-bar of the upper sash. A spring on the under side, projects the bolt; and *e*, is a screw, to be turned by a key, for the purpose of confining the action of the bolt.

Both the drawing and description of this specification are so vague and imperfect, that we are merely enabled to give a general view of the patentee's intention, perceiving that the contrivances cannot act exactly in the way in which they are represented.

[*Inrolled November*, 1826.]

To Sir George Cayley, *of Brompton, in the County of York, Baronet, for his having Invented a New Locomotive Apparatus.*

[Sealed 6th October, 1825.]

This invention, by its title, purports to be a new locomotive-engine, or at least some part of a loco-motive-engine, but in fact is only an appendage to a tram waggon, and has nothing to do with loco-motion. The intention of the patentee is to adapt a sort of travelling rail-road to ordinary tram waggons, and this he has done precisely upon the plan proposed by Mr. J. R. Barry, and which formed the subject of his patent, dated 26th July, 1821, see our third Vol. page 281, and Plate XIV. As however, every adaptation of the same principle to a different kind of carriage, must necessarily call forth variations in the modes of constructing the parts of the detail, so the present proposition, which is to adapt the invention to a tram waggon, is carried into effect with some slight changes in the mechanism.

Plate X, fig. 5, is a side view of a tram-waggon *a*, of the usual form employed in conveying coal and other materials from the mine; *b*, *b*, are like the ordinary running wheels of such carriages, turning upon axles attached to the back and front of the waggon; *c*, *c*, *c*, is an endless chain, of which there is one on each side of the waggon, extending round the peripheries of the wheels *b*, and confined between the side rims or flanges.

From each of the links of the chain, two arms extend outwards, carrying a small roller *d*, the axles of which rollers are at right angles to those of the running wheels.

The waggon being drawn forward by horses or any other means, a series of the rollers *d*, come successively in contact with the ground, and there remains stationary for a while, the wheels *b*, turning as the carriage moves forward, and running upon the endless chains; the rollers *d*, coming down to the ground in succession before the waggon, and rising up behind it.

In this way the waggon is drawn forward upon stilts, for such in fact, the rollers *d*, are, and in case any one of these comes down upon a stone or other elevation in the road, a roller is placed at *e*, between the running wheels, to support the chain, and take off any extraordinary strain to which the carriage would be otherwise subject.

The rollers *d*, are placed with their axles lengthwise of the waggon, for the purpose of enabling it to move out of a straight course when required to turn, but the patentee does not always employ these rollers, but sometimes introduces legs attached to the chain, upon which the waggon is moved forward in the way above described.

Should the waggon have to travel upon roads which are raised in the middle, or incline out of the level on one side, it will be necessary to employ a contrivance for keeping it in its straight path. This is proposed to be done by two wheels with conical peripheries attached to separate axles crossing each other, and suspended, under the waggon. The ends of the axles opposite to that to which the conical wheel is attached, rises and falls upon a hinge joint, and when it is required to bring one of these wheels into operation, it is only necessary to let down the axle next the descending side of the road, which then presents the edge of the conical wheel to the ground, and as the carriage inclines to slide down the declivity, the sharp edge of the wheel cuts into the ground, and keeps the carriage in its straight path.

[*Inrolled April*, 1826.]

De-la Garde's. Mach.y for breaking. Flax, &c.

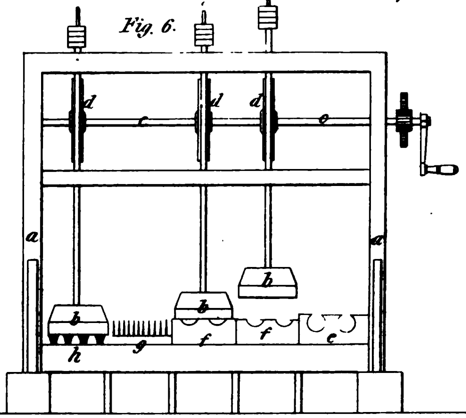


Fig. 6.

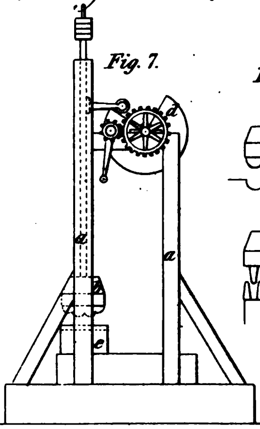
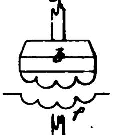


Fig. 7.

Fig. 8.



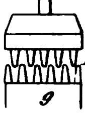


Fig.

Kennedy's Cupping App.ts

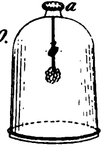


Fig. 10.

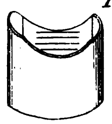


Fig. 11.

Loach's. Imp.d Sash. Fasteners.

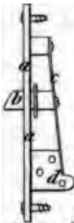


Fig. 1.

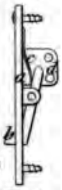


Fig. 2.

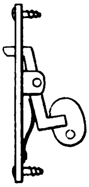


Fig. 3.

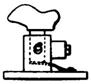


Fig. 4.

Halliday's Chimneys.

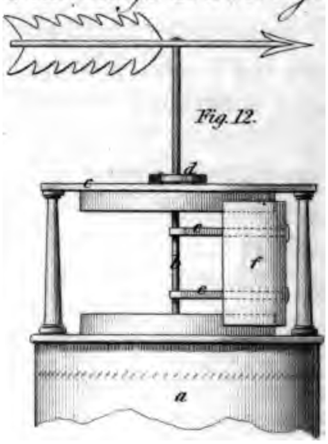


Fig. 12.

Cayley's Loco-motive Apparatus.

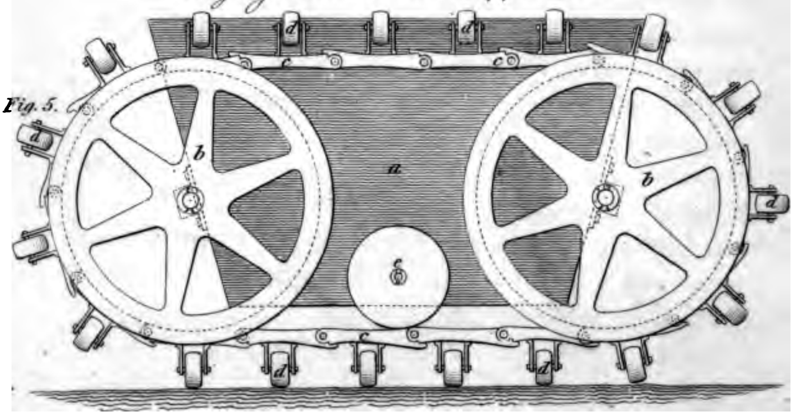


Fig. 5.

S. Sollin

To AUGUSTUS COUNT DE LA GARDE, *of St. James's Square, Pall Mall, in the County of Middlesex, in consequence of a communication made to him by a certain Foreigner, residing abroad, for a certain Improved machinery for breaking or preparing Hemp, Flax, and other fibrous materials.*

[Sealed 24th November, 1825.]

THE machine herein proposed to be employed for breaking and preparing hemp, flax, and other fibrous substances, is intended to operate upon those materials in different stages of the preparation; that is, first to separate the seeds, next to bruise the boon or woody incrustation, then to open and clean the fibres, by combing or heckling; and lastly, to refine the material still more by brushing.

Plate X, fig. 6, is a front view of the machine, fig. 7, is an end view of the same; *a, a,* are standards supporting the frame work, and machinery; *b, b, b,* are beaters attached to the lower ends of perpendicular rods, which slide up and down in the rails of the frame-work; *c,* is a horizontal shaft having cams *d,* behind each of the beater rods, and by the rotation of this shaft, the cams acting against arms, raise the beaters, and let them fall with considerable force upon their respective beds.

The lower part of the machine is divided into several compartments, in the first of which *e,* the seeds are to be separated from the flax or hemp, by placing the flax or hemp in lengths, in the circular recesses, when the operator pressing upon it with his left hand, draws the material out with his right, and in its progress scraping against the edge of the front plate, the seeds are separated, and fall to the bottom through a grating.

The flax or hemp is next placed in one of the compartments *f*, *f*, and the winch of the cam shaft being turned the beaters are made to rise and fall, bruising the material in its descent; and in order to do this more effectually, these beds are hollowed out in the transverse direction and indented like an escollop shell, (see fig. 8.)

When the boon or woody parts of the flax or hemp has been thus bruised and broken, the material is taken to the compartment *g*, for the purpose of being combed or heckled, and is then drawn through between the points, and the boon by that means is scraped off. This cleansing may be further promoted by placing rows of teeth, represented at fig. 9, between the heckle points.

The process of heckling being complete, the fibres of flax or hemp, may be further refined by drawing them through the brushes in the compartment *h*.

Such is the general construction of this improved machine, differing but little in its *modus operandi*, from other plans which have been heretofore practised for the same purpose. It must therefore be considered that the novelty consists in the peculiar arrangement of the parts, and the mode of working the beaters by rotatoy cams.

It should be observed that the patentee proposes to perform this process of breaking, cleansing, and refining the flax or hemp, without previously submitting it to steeping in water, which he considers to be injurious to the fibres.

[*Inrolled May,* 1826.]

To CHARLES KENNEDY, *of Virginia Terrace, Great Dover Road, in the County of Surrey, Surgeon and Apothecary, for his Invention of certain Improvements in the Apparatus used for Cupping.*

[Sealed 29th April, 1826.]

THE apparatus in ordinary use for cupping, consists of a glass bell formed vessel, which being inverted upon that part of the body; where the punctures have been made by the lancets, an exhaustion is produced within the bell by burning a portion of the air, and the blood immediately flowing into the vacuum, by the pressure of the external air, the desired operation is effected. In removing the glass bell from the swollen part of the flesh, considerable inconvenience arises, and to remedy this is one object of the present invention.

In the upper part of the improved glass bell, an aperture is made, which is closed by a screwed cap of metal, and rendered air tight by a collar of leather. By means of this contrivance the burner for consuming the air, can be more conveniently introduced, and the glass bell be more correctly fixed than in the old apparatus.

Plate X, fig. 10, exhibits the glass bell; *a*, is the cap, screwed over the aperture in the top of the bell, the junction being rendered perfectly air tight by a collar of leather, or any other suitable material. Into the cap a small rod *b*, is screwed, and to this rod a piece of sponge or tow is attached. When preparing for the operation, the glass bell being fixed, the sponge or tow is dipped in spirits of wine or turpentine, which being set fire to, is immediately introduced into the glass bell through the aperture at top; and the cap being screwed down air tight, a portion of the air within the glass becomes consumed by the flame of the burning spirits. The blood now issues from the scarification into the exhausted bell, and when a sufficient quantity of blood has been drawn, the metal cap is unscrewed, and the air re-admitted. The bell containing the blood may now be removed without inconvenience.

Fig. 11, is a receiver into which the blood is to be discharged from the glass bell, and is described by the patentee, in a way in which we do not exactly understand, as "a vessel made of metal, named the graduated receiver, intended to receive the blood drawn into the glass, by being placed under it, when it is to be withdrawn; the shape of the mouth of the said graduated receiver being of a semi-circular form to fit that of the said glass, the said graduated receiver being moreover graduated for the purpose of ascertaining the quantity of blood drawn."

[*Inrolled October,* 1826.]

To Sir Robert Seppings, *Knight, a Commissioner and Surveyor of the Royal Navy, of Somerset House, in the County of Middlesex, for his Invention of certain Improvements in the construction of Fids, or Apparatus for Striking Top Masts, and Top Gallant Masts, in Ships.*

[Sealed 6th May, 1826.]

In explaining the nature of this invention, the patentee has not thought it necessary to exhibit any drawing of his improved fid, presuming that the situation, and intention of fids on ship-board are sufficiently understood; (see Rotch's patent, for an improved fid, Vol. IX, page 177, and King and Kingston's patent, for certain improvements in fids, Vol. XI, page 293; with the plates referring thereto) the invention is therefore described in the specification, in a few words as follows:—

"The nature of my invention is to place upon each trestle tree, a metallic plate having a female screw, for the reception of a male screw, with convex heads, on which the fid is supported. The fid is formed and placed as usual, with the exception of having its under side concave from end to end, this enables it to rest securely upon the convex heads of the screws.

The screws which are turned by short levers, are to be of sufficient length to allow them to be always so far out of the trestle trees, that by suspending the mast by the top ropes, and passing the male screws into the sockets or female screws, the fid may be sufficiently relieved from the weight of the mast, and stress of the rigging, as to be easily removed. The screws will allow the rigging being set up or slackened."

[*Inrolled November*, 1826.]

To Alexander Shoolbred, *of Jermyn Street, in the Parish of St. James's, in the County of Middlesex, Taylor, for his Invention of certain Improvements on or substitutes for Back-stays, and Braces for Ladies' and Gentlemen, chiefly to prevent Relaxation of the Muscles.*

[Sealed 18th August, 1825.]

The object of this invention is to produce an elastic support and bracing to the backs of persons who are narrow in the chest, and what is commonly called round-shouldered. The patentee states, that observing the evils and inconveniences attendant upon wearing a stiff inflexible back-stay, he has invented a stay to be worn by round shouldered persons, which shall have a constant tendency to draw the shoulders back, and at the same time possess so much elasticity, as not to tire, or in any way inconvenience the wearer.

The mode of constructing these stays, is, by introducing into the back part of the stay, a series of small helical or worm springs, made of steel or brass, and covering them with silk, linen, cotton, or other material, puckered up; which when properly braced to the body, will draw back the shoulders with considerable tension, but yet allow free action to the expansions and contractions of the body in breathing.

Plate IX, fig. 3, shews the form of the stays designed for a lady; *a, a,* are the side pieces made with shoulder-straps as usual; *b,* the portion of the stays occupied with rows of the helical springs placed cross-ways. In this construction it will be perceived that the springs are enabled to elongate as the body expands, but yet to a certain extent, keeping a constant tension between the shoulders, and thereby drawing them into their natural Position.

Fig. 4, is another mode of constructing these elastic back-stays; *a, a,* are the non-elastic side pieces; *b, b,* the elastic part, made in this instance by placing the rows of helical springs obliquely, which will have a tendency to draw the shoulders down; and *c, c,* is a girdle attached to the bottom of the stay, and intended to buckle round the waist, which is also made elastic by the introduction of similar springs.

Fig. 5, is the form of stay proposed for a gentleman;

a, a, are the side pieces; *b,* the elastic part made with helical springs ranged horizontally as fig. 3; *c, c,* are the shoulder straps, and *d, d,* are braces attached thereto in front, for holding up the breeches; the loops or button-holes *e, e, e, e,* being furnished with cords which slide over small rollers at *f, f.*

Such are the forms of back stays proposed, but they may be made in various other fashions, the principles of the invention being the introduction of the helical springs between the shoulders.

[*Inrolled February,* 1826.]

To Francis Halliday, *of Ham, in the County of Surry, Esq. for his having Invented an Apparatus or Machine for preventing the inconvenience arising from Smoke in Chimneys, which he denominates a Wind Guard.*

[Sealed 25th April, 1826.]

This invention is a shield connected to a vane, which being turned round with the vane, protects the top of the chimney, from any sudden gust of wind, and thereby enables the smoke to pass off without obstruction.

Plate X, fig. 12, shews the construction of the apparatus *a,* is the chimney top covered with an iron plate, having a circular opening in the middle for the passage of the smoke; *b,* is a central shaft bearing on a cross bar at bottom, and carrying the vane at top; *c,* is the upper plate supported by pillars, upon which plate there are three anti-friction rollers at *d*, touching the central shaft, and enabling it to turn in its bearing with very little friction; *e*, *e*, are two arms extending from the central shaft to which the curved plate *f*, is affixed, constituting a shield.

The vane may be an arrow, or any other figure, which turning its point to the wind, carries round the guard into that situation which is exactly opposed to the wind, and thereby effectually prevents the wind blowing down the throat of the chimney; and of consequence enables the smoke to pass away freely into the atmosphere.

The form of the wind guard may be varied, that shewn in the figure is about one-third of a cylinder, it may however be straight, or at an obtuse angle bending inwards.

Another variation is also proposed in the form of the wind ground, viz. to bend it at an obtuse angle outwards, in which case the support of the guard is not to be arms as *e*, *e*, but two plates, leaving an open channel through them, for the wind collected on the inclined faces of the guard to pass through. By thus forming a rapid current of wind, immediately over the throat of the chimney, it is considered that a partial vacuum will be formed near the current, and that the smoke will by that means be drawn from the chimney, and its draft consequently very much improved.

It is further proposed to place a bevel pinion on the central shaft *b*, which shall take into another pinion, on an horizontal shaft, and by that means cause two guards adapted to distinct chimneys to act simultaneously by the agency of one vane.

The patentee proposes to form the plates, and frame of the apparatus of cast iron, for the sake of cheapness and durability, and the shaft and guard of wrought iron or copper. It is acknowledged that similar plans for this

Fernandez. Imp.ts in Window Blinds.

Fig. 1.

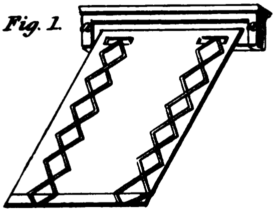


Fig. 2.

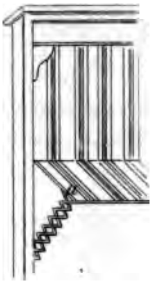


Fig. 3.

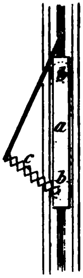


Fig. 4.

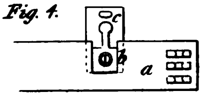


Fig. 5.

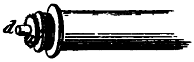


Fig. 6.

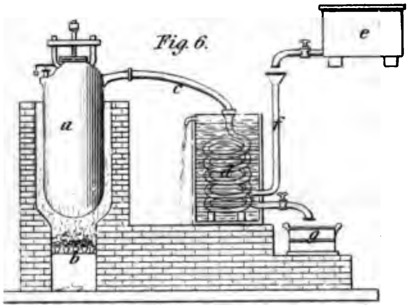
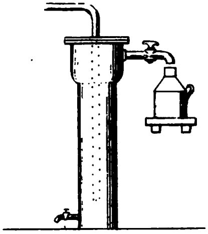
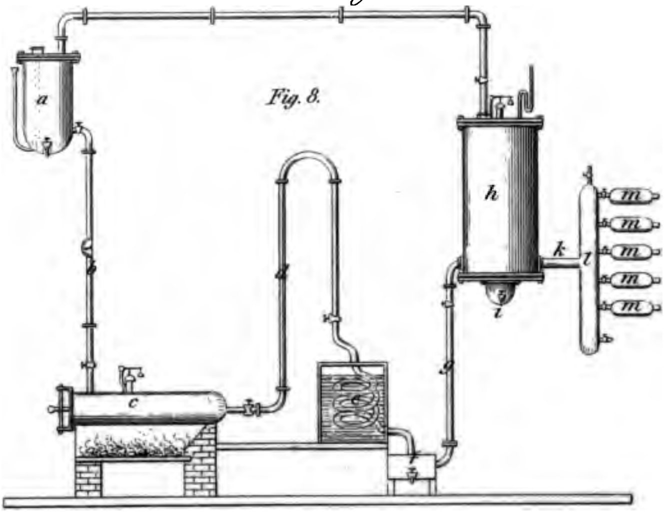


Fig. 7.



Luscombe's Oil & Gas Apparatus.

Fig. 8.



purpose, have been before employed, but a wind guard with its appendages contrived in the way described, is considered to be new, and is claimed accordingly.

[*Inrolled October*, 1826.]

To James Barlow Fernandez, *of Norfolk-street Strand, in the County of Middlesex, Gentleman, for his Invention of certain Improvements in the construction of Blinds or Shades for Windows, or other purposes.*

[Sealed 26th May, 1826.]

The subjects of this invention are divided into four heads; first, the adaptation of an apparatus called by the patentee an elongating and contracting support, by which blinds can be projected outward and drawn inward, with great facility; secondly, side grooves in which laths are made to slide up and down, carrying the stretchers, or elongating and contracting supports; thirdly, a contrivance by which the blinds may be attached to their frames, or detached therefrom, without the trouble of screwing or unscrewing, and without disturbing the frames from their fixed positions; and fourthly, an improved cap to be attached to the end of the spring roller.

Plate XI, fig. 1, exhibits a sun-blind projected forward from its box *a*. At the upper part of the blind, the sockets are fixed, from which the expanding and contracting supports or lazy-tongs are projected, and the extreme ends of these are attached to the lower rail of the blind. The construction of the lazy-tongs is well understood; it consists in introduced into the retort, fourteen pounds weight of water are to be added, from which, when the retort is heated, a quantity of aqueous vapour, mixed with gas, will be first driven off, but when the retort becomes sufficiently heated, and the apparatus in proper action, oil-gas will be driven off through the pipe *c*, which will become condensed in the worm *d.*

The worm *d*, is constructed exactly in the way of refrigeratory worms employed by distillers in common; it is immersed in a vessel of water which is kept cold by a continual discharge from the cistern *e*, into a funnel and pipe *f*, through which the cold water is conducted to the lower part of the worm tub. The distillation of the rosin thus conducted, will cause the oil to become condensed in the worm, and to run off by a pipe at bottom into a can or vessel *g*.

The mode of introducing the rosin into the retort in its broken state as described, is by opening the aperture at the top, and when sufficiently charged, as above directed closing the aperture by a plate screwed down securely and luted at the joints. A safety valve is also introduced in the upper part of the retort to prevent the possibility of accidental explosion. But as this charging of the retort will require to be repeated frequently, as the rosin becomes expended, it is proposed under some circumstances, to introduce the resinous matter into the retort in a liquid state, and to keep it continually flowing in a small current. This mode, however, is not so well approved by the patentee as the introduction of the rosin in a solid form, broken into small pieces as first proposed.

The process may be carried on without introducing water into the retort, but in that case the oil will be of an inferior quality, and of a darker colour, but when the oil thus prepared is to be used for mixing up with paint, then the water must be dispensed with, and the dark colour of the oil may be in a considerable degree removed by filtering it through a mass of ivory black.

It is stated, that the operation of distilling the oil from the rosin, may be greatly promoted both in expedition and effect, by performing the process under atmospheric pressure, but in what way this is to be effected, we do not exactly perceive.

Another mode of receiving the oil from the refrigeratory worm is shewn in fig. 7, in which the pipe from the lower part of the worm is passed nearly to the bottom of a vessel, three parts filled with water, and the oil rising to the top of the water, flows over through a small pipe and cock, at the upper part of the vessel, into a can placed there to receive it. One advantage in employing this last described apparatus is, that any gross or heavy particle, which may happen to have come over with the oil, will be enabled to subside to the bottom of the vessel, and may be drawn off from thence by a cock, leaving the oil in a more pure state.

The patentee observes, that the apparatus which he employs is not new in its individual parts, all of them having been before known, and employed in a similar way; but he claims the peculiar combination of the parts as set forth, and applied to the purpose of extracting oil from rosin.

The second part of the invention, the generating of gas from oil, produced in the above way, is proposed to be performed by the apparatus, shewn at fig. 8; *a*, is a vessel intended to contain the oil, from whence it is to flow by a pipe *b*, into a retort *c*, below. The oil before it is introduced into the receiver *a*, is to be heated in a distinct vessel, to a temperature of 130° Fahr., when a quantity of sub-carbonate of soda in a calcined state, is to be sprinkled upon it, and stirred up into the oil, until it has been saturated with the material; the stirring being continued as long as any effervescence continues to rise.

The oil being placed in the vessel *a*, its discharge from thence through the pipe *b*, is regulated by a cock with an index placed about the middle of the pipe: this cock being turned by the index, so as to open the aperture to any discharge that may be required. The retort *c*, is placed over a furnace, the heat of which decomposes the oil as soon as it decends into the retort, and the gas thus generated, passes off through the pipe *d*, to the refrigeratory worm *e*. Here the grosser, and more heavy particles arising from the retort, become condensed, and flow with the gas through a small pipe into the vessel *f*, where the condensed liquid matter subsides, leaving the gas to ascend through the pipe *g*, into the gas holder *h*, at the lower part of which there is a small recess *i*, to receive any further deposition that may take place.

From the receiver *h*, the gas is allowed to pass by a small pipe *k*, into a box, or chamber *l*, to which chamber any number of the vessels *m*, *m*, *m*, may be attached by a screwed joint. In this way the vessels *m*, are to be filled with gas from the gas holder; and when so filled, they are to be unscrewed, and conveyed away to be stored, or for the supply of burners.

One important part of the apparatus is the pipe *n*, *n*, *n*, extending from the top of the gas holder *h*, to the top of the oil reservoir or vessel *a*. The intention of this pipe is to conduct the gas from the gas holder *h*, to the oil vessel *a*, in order that the pressure of the gas, whatever it may be in the gas holder *h*, may act upon the surface of the oil in the vessel *a*, and force it through the delivery pipe with a pressure equal to that under which the gas is received into the holder.

The patentee states as in the former instance, that he does not claim any of the parts of this apparatus separately, as new, but that he claims the whole when combined in the manner shown.

[*Inrolled June*, 1826.]

Novel Inventions.

Mr. L. W. Wright has just completed a new construction of engine, for making screws with open threads, commonly called wood-screws. The principles of this engine resemble in many parts those of the very ingenious machine for making pins, described in our Ninth Vol. and its operations are equally successful; the articles produced being of a quality far superior to any of the wood screws heretofore sold in the shops of this country, and also much preferable to the justly formed wood-screws of French manufacture.

The operations of making these improved wood-screws is conducted in two distinct apparatus, the first of which is employed for cutting the required lengths of iron wire, and forming the heads of the intended screw; the second for slitting the heads and for cutting the threads or worming.

The first machine is a frame upon standards, containing a series of sliding bars and levers, which are put in motion by rotatory excentric cams, affixed upon a main axle, and this axle is turned by gear, from one auxillary shaft, which may be made to revolve by manual labour, steam, or any other power. A cam of an eliptical form, as it revolves, draws a sliding bar, connected at the reverse end of the machine, to one leg of a pair of pincers or tongs, which hold the wire for making the shaft or body of the screw.

The movement of this bar first closes the pincers causing the chaps to take fast hold of the wire, and then as it proceeds brings the wire forward a sufficient length for forming the screw. The wire is thus brought into a cylindrical aperture, between a pair of dies, when another cam upon the main shaft, moves a lever which closes the dies, and at the same time brings down a cutter, which in passing the end of the dies, cuts off the wire of the length required. The dies at their inner extremity have an enlargement, into which a punch is forced by the action of another cam, for the purpose of compressing the end of the wire shaft into the form of a head.

The headed shaft of the intended screw, when thus far made, is delivered by the punch retiring, and the dies opening, the next length of wire pushes it from its place, and at this moment, a pair of fingers or spring clips which are moved to and fro across the machine, by a lateral lever, and cams takes hold of the screw, and conduct it to a pair of holders in the middle of the machine, where it rests, until by the next action of the machine, another pair of fingers, carry it to a second heading die. This die is differently formed to the dies before described, it being of one solid piece, with a cylindrical hole through it, and a recess in its end, suited to the intended figure of the screw head. The last mentioned finger holds the screw exactly opposite to the hole in the die, when a cam upon the main shaft sends forward the punch, which force the screw into the die, and perfects the head.

On the retiring of the punch, a spring pusher projects the screw from the die, and it falls down into a box, or other receptacle below; from whence it is taken to the second machine, where the head is slit, and the thread cut.

The second machine in its general arrangement, like the first, consisting of a main rotatory cam shaft, which actuates several sliding bars and levers. A considerable number of the previously headed shafts of the intended screws, are (by the hands of a boy who attends to feed the machine,) placed in a series of holes in the side of the rim of the wheel, called the feeding wheel. This wheel is driven round by a leaf upon a lateral axle, which as it revolves, strikes against the teeth of a wheel upon the axle of the feeding wheel, and thereby turns it at intervals, for the purpose of bringing each screw-shaft in succession into a situation where a spring clip or fingers takes hold of it. A pair of cams on the main shaft, as it goes round, moves a lateral lever, to which the sliding bar is attached, that carries the fingers; and the first finger having taken hold of one of the screws, the movement of this bar conducts the screw to a pair of chaps, where it is held, while another cam brings forward a carriage with a rotatory cutter, and causes the slit er notch in the head of the screw to be made.

The first finger having deposited the screw in the chaps, as stated, returns to bring the next screw from the feeding wheel, and so on successively, bringing a screw at every movement, while the second pair of fingers on the aforesaid bar, takes the screw from the chaps where it has been notched, and carries it to another pair of chaps, where it is held, for the purpose of worming, or cutting the thread.

The worming apparatus consists of screw dies, placed in a circular stock, with lateral springs; which circular stock receives a reciprocating rotatory motion, by a double throw crank, with connecting rods and sectar, and is put in motion by multiplied gear from the main shaft. The spindle of the rotatory die stock has, at its reverse end, a screw thread cut, which works in a fixed nut, for the purpose of causing the dies to advance and recede. The thread of this screw, is the regulator which conducts the die along, and must have the same pitch of thread as the die.

The chaps which hold the screw while the thread is cutting upon it, are made to advance and recede to and from the revolving screw dies, by a cam upon the main shaft, which pushes them forward; a spring forcing the chaps back again when the thread has been cut. This movement of the chaps, is for the purpose of enabling the second fingers or spring clips to put the screw into the chaps, and to allow the third fingers to take it out again, after the thread is formed; the chaps being now opened by a cam. The third pair of fingers carries the screw now finished away from the chaps, and brings it against a projecting piece, which knocks the screw out of the fingers, from whence it falls into a box, or other receptacle below, in a finished state.

Early in our succeeding volume, we shall give a particular description of this very ingenious machinery, with a plate.

Wright's Crane.

The experiment as to the comparative merits between Mr. Wright's improved Crane, and those previously in use at the West India Docks, took place on the 1st of November. We had considered that the mode proposed would be little more than a trial of muscular strength, and so it proved to be.

A crane of the best kind, upon the old construction, was appointed to compete with one of the improved cranes upon Mr. Wright's principle, and to work this, six of the most powerful men were selected from among several hundred; men, who were really giants as to stature and strength of muscle, and accustomed for years every day to the laborious business of working cranes at these docks.

Mr. Wright's crane was worked by three bricklayers, labourers taken from the hod, and yet with these enormous disadvantages, as to strength and habit, the comparative work of the two cranes, was very much in favour of Mr. Wright's new construction. We were present during part of the experiment, and can vouch for the following statement (which has been put into our hand) as perfectly correct:

The weight raised by each crane and each set of men was 18 cwt.; and the space through which it was raised each time 30 feet.

The six men, with the common crane, worked 2 hours 23 minutes and 36 seconds, and hoisted the weight 81 times; being on an average once in every minute 46 seconds and four-tenths of a second.

The three men with Mr. Wright's crane, worked only 2 hours 10 minutes and 30 seconds (an accidental fracture of part of his machine causing it to stop sooner than the other), and hoisted the weight 46 times, being on an average once in every two minutes 50 seconds and two-tenths of a second.

To reduce the work done by the two sets of men to equal terms of comparison, we must

First equalize the time occupied:

	h.	m.	sec.
The six men worked	2	23	36
The three	2	10	30
Difference .		13	6

So that we must deduct from the total number of hoists (81) made by the six men, the number of hoists in 13 minutes 6 seconds, which, at one hoist per minute 45 seconds and four-tenths, is nearly 8; say, however, only 7; this reduces the actual number of hoists made by the six men in the same space of time to 74.

Secondly, We must equalize the manual power employed; to do which we must take half only of the work done by the six men, to represent what three would have done in the same time. Hence $\frac{74}{2}$ 37.

We have, then, for the work done in 2 hours 10 minutes 30 seconds, by three men, with the old crane 37
By three men, in the same time, with Mr. Wright's crane 46

Gain by the new crane . . 9

The result of this experiment gives an advantage in favour of the new crane, about one-fourth; and it will be readily admitted, that had the habits and powers of the men been equal, the advantage would have been much more apparent.

At the conclusion of the experiment, the six men belonging to the docks, who worked almost in a state of nudity, and exerted themselves in a most extraordinary manner, appeared, as might be expected, considerably exhausted. Two of them bled at the nose and mouth, and a third was sick, while Mr. Wright's labourers displayed little or no symptoms of exhaustion.

The directors of the docks appeared to be perfectly satisfied by the experiment, but Mr. Wright has determined to have recourse to another trial, the result of which shall be more evident, and for this purpose has provided another crane, which will be ready for exhibition in a short time, and in the next experiment, we understand, that descending, Weights are to be appllied as the actuating power, which will, at once, determine the amount of actual advantage above cranes of the old construction.

Improved Gas for Illumination.

Mr. Henry Pinkus, of Philadelphia, has just obtained two patents for improvements in the methods of generating and purifying gas for illumination, upon which improved plans, a manufactory in London has been lighted up with complete success.

The gas afforded a clear and brilliant light, and was found to be wholly exempt from that fœted odour which has hitherto been found to emanate from gas in the most purified state in which it is furnished for consumption. We are not yet at liberty to make known the particulars of these improvements, as the Irish and Scotch patents now in progress are not yet sealed, but we anticipate that the public will be much benifitted by this invention, as gas-lights will, by these means, be afforded under circumstances of decidedly greater economy than has ever before been proposed.

Not the least important part of these improvements, is the simple method of purifying gas practised, and which as far as we have yet seen, appears to be perfectly effective. It is well known, that gas in its crude state, contains portions of sulphuretted hydrogen, and carbonic acid, which, by the present system of purification adopted at the gas-works, is not completely absorbed, nd when burnt in close apartments, or in any considerable quantity produces a suffocating odour, blackens paint, or tarnishes metallic substances, and causes head-ache, and other unpleasant feeling to the persons who breathe the atmosphere in its vicinity. These have been the great objeciions to the introduction of this desirable light into private houses, and the cause of its expulsion from many of the principle club-houses and hotels in this metropolis.

The patentee considers his method of purifying as entirely obviating these imperfections, and we have to our own satisfaction, witnessed that his gas is quite free from any unpleasant smell, even when allowed to escape unburned.

Patent granted by the American government to THOMAS LOUD, JUN. *of the firm of Loud & Brothers, of the city of Philadelphia, manufacturers of Piano Fortes, for an improvement in the Horizontal Piano Forte.*

To all to whom these presents shall come be it known, that I, Thomas Loud, Jun. have invented a new and useful improvement in the Horizontal Piano Forte, whereby the tone is greatly improved, the instrument is less subject to get out of tune, and the strings are less liable to break; for which invention and improvement I claim a Patent, according to the laws of the United States.

And I, the said Thomas Loud, Jun. do hereby declare that the nature of my said invention and improvement, and the manner in which the same may be carried into effect, are fully made known, in the following description or specification.

In the Horizontal Piano Fortes, heretofore made, that part which is technically denominated the *action* is placed below the strings, and the hammers are made to strike upwards, in a direction contrary to that of the support given to the strings by the bridges. In my improved Piano Fortes, I, in general, intend to place the action above the strings, and to cause the hammer to strike downwards, the strings being supported upon bridges in the ordinary way. Sometimes, however, I intend to place the bridges above the strings, attaching them to sufficient supports of wood, or metal, and to place the action below the strings, in the way heretofore practised.

But what I particularly claim as my invention and improvement, is the causing the hammer to strike the strings of horizontal Piano Fortes, in such a way that the direct action of the blow upon the strings, is sustained, and resisted by the bridges, in consequence of their being situated on the side opposite to the hammers.

Messrs. Loud & Brothers have just completed a Piano Forte, on the plan indicated in their specification, which we have examined, in conjunction with some other persons, well able to judge of the tone, and other qualities of the instrument. It has been a desideratum to give to the Horizontal Piano Forte, the roundness, firmness, and clearness of tone, which distinguishes the best cabinet instruments: this bell-like, or glassy effect, is produced in a very high degree by the arrangement adopted by the Messrs. Loud. The action in this Piano is below the strings, as is usual in those of a similar form; but the bridge, or support, is inverted, being placed above the strings; this arrangement possesses the advantage of greater simplicity in the action, than is possible by the other method proposed by the patentees, that is, the placing the action above, and the bridges, or supports, below the strings. We are convinced, however, that in this latter mode, the frequent breaking of the strings will be prevented, and that the instrument will stand much longer in tune than any other of the horizontal kind; our reason for this conviction is that the effect of the blow of the hammer, in its tendency to break or lengthen the strings, will be counteracted by the supports, or bridges, on their opposite sides.

Editor of the Franklin Journal.

A new kind of Cloth fabricated by Insects.

Extract from the Memoir of Mr. Lenormand, read at the National Institute of France.

Mr. Habenstreet, of Munich, has succeeded in procuring the cloth in question, by directing, after patient efforts, the labours of a kind of caterpillars, in a certain space. These caterpillars are, according to this ingenious gentleman, the larvæ of a butterfly, described under the name of *Finea punctata or Finea padilla*, by some authors. Their instinct teaching them to construct over them a tent or covering, of extreme fineness, but nevertheless of sufficient texture impervious to air, and which may be easily separated from the body, upon which it rests; Mr. Habenstreet took advantage of this circumstance, to make the insects work on a paper model, suspended from the ceiling, to which model he gave precisely the form and dimensions which suited him. He thus obtained square shawls, of an ell in size; some of two ells in length, by one in breadth; an air balloon, of four feet high, by two in horizontal diameter; a woman's complete robe, with the sleeves, but without seams. In order to give the tissue a regular form, it is often necessary to fix limits, beyond which the caterpillars must not go: to this end, one has only to touch the interdicted parts with oil; for the worms, having a natural antipathy to this substance, will never work on those spots which have been oiled; they will not, in short, touch them; so that Mr. Habenstreet succeeded in making the caterpillars fabricate a stuff, which appeared as if regularly stitched. It is easy to conceive that the number of caterpillars required for a given work, must be proportioned to its dimensions; one, or two at most, are sufficient to form a square inch of cloth; so that their number is not so great, as one, at the first view, would be inclined to imagine.

Mr. Lenormand enters into the details upon the nature of the cloth produced by the caterpillars. This stuff, although of considerable firmness, yet is of a fineness which exceeds that of the lightest gauze. Mr. Lenormand exhibited to the Academy a specimen of the cloth; it would be difficult, without having seen it, to form an idea of its extreme levity.

Mr. Paret, professor of chemistry in the Academy of Stockholm, who sent the above mentioned specimen to the author of the memoir, saw himself, the insects at work; and furnishes, on this head, some curious details.

The balloon, mentioned above, weighed less than five grains; nevertheless, it was air tight; the heat of the hand was sufficient to inflate it in an instant; and the flame of a single match, held for some seconds beneath it, caused it to rise to a considerable height in the air, where it remained for half an hour.

A shawl of an ell square, on being extended, was blown into the air, by a slight puff, and it then resembled a light vapour, gently agitated by the wind.

Mr. Habenstreet offered to make a present of a shawl to Mr. Paret, on condition that the latter would cause it to fall from the air upon his head; but this was found to be impossible; for as the shawl approached his body, the heat which exhaled from it, produced sufficient agitation in the air to repel the shawl.

As we before stated, Mr. Habenstreet caused the caterpillars to fabricate a complete robe, which he presented to her majesty, the Queen of Bavaria, who frequently wore it over her dress, on court-days.

It is easy to conceive that Mr. Habenstreet has been enabled to succeed in his undertaking, only after numerous experiments, prosecuted with indefatigable patience. The productions of the caterpillars are composed of the same materials as those of which they form their cocoons. This singular fabric has no resemblance to silken stuff, the filaments of which are regularly interlaced; whereas, those whereof the former is composed, are superposed; and this act takes place at the moment that the insect secretes the matter which forms the stuff. Mr. Habenstreet has been enabled to give to this novel manufacture, an increased solidity, by compelling the insects to labour several times over the same surface. This labour can neither be so long nor so difficult as may be conjectured, since Mr. Paret saw, at Munich, a shawl, of an ell square, which cost only the trifling sum of eight francs.

The caterpillar which effects the fusain(*euonymus europœus,*) and which, in France, is more common than that made use of by Mr. Habenstreet, spins its threads, and forms a tent in a similar manner; and advantage may be taken of its labours, by following Mr. Habenstreet's process, which is indicated in the memoir of Mr. Lenormand; but to this end, says the latter, one must be possessed of industry and patience, equal to those qualities which are so conspicuous in the Munich entomologist.

Mason and Tyler's improved Face Chuck for Turner's.

SIR—Should you think the following description of a reverse face chuck worth communicating to the public, through the medium of your very useful publication, it is at your service.

The flat, or face chuck, is a well known and useful appendage to the lathe; but having frequent occasion to chuck a piece with its face side outward, and finding all the usual methods too tedious and uncertain, we have contrived the chuck here described, which obviates every difficulty.

This chuck consists of a circular plate, like that of the common face chuck; it is perfectly flat on both sides, and of equal thickness throughout, and is so formed, that when attached to the mandrill, a space of two or three inches is left between the back of it, and the mandrill, so as to allow the piece of work to be fixed on either side of the plate, with its faced side either to, or from, the workman, as occasion may require.

The plate should be no thicker than is necessary for stability: it has a hole through the centre, and through this hole the work is performed, when the piece has been properly secured by wedging or otherwise.

Another method, and one which we prefer, is, to add to the common face chuck, at the distance of two or three inches from, and parallel to it, a second plate, faced on the inside, and having an opening in the centre, through which the work is performed.

This second plate is supported from the first, by pillars, or blocks of equal thickness, three or four being used, according to the size and shape of the piece to be chucked. Screw bolts pass through these several pillars or blocks. to secure the front plate in its place.

This chuck, with its pillars, or blocks, resembles the two plates of a circular time piece, with their pillars.

In this chuck, any piece which is not thicker than the space between the two plates may be fixed for drilling or turning, with the most perfect facility; the usual way of doing this is by wooden wedges driven between the work, and the back plate. Set screws are also used, when required by the nature of the work.

Very respectfully, yours, &c.
W. Mason and R. Tyler.

An easy Method of dividing Plates of hardened Steel, such as Saw-plates; and also of perforating them when requisite, by Dr. T. P. Jones of Philadelphia.

Workmen frequently wish to divide a broken saw-plate, for the purpose of converting it into scrapers, square-blades, or small saws; this is usually attempted by notching them to a small depth with a cold chisel, and then breaking them along the lines so made. When the plate is very hard, this method will not succeed, and the plate is frequently destroyed in the attempt. When it does succeed, the plate is generally twisted, and *buckled*, in the operation.

The Editor had a hard plate, which he was desirous of cutting into strips, to make small saws for a working model of a saw mill; this, although too hard to yield to the chisel, he divided with the utmost facility, piercing the ends at the same time, for the purpose of stretching the saws; this was effected in the following manner. The saw-plate was made sufficiently warm to melt bees-wax, which was then rubbed over it, so as to coat it completely on both sides, when it was suffered to cool. Lines were then drawn through the wax on both sides of the plate, with a steel point. It being of great importance that these lines should be exactly opposite to each other, this was effected by making a saw-kerf, in the strip of wood which was used as a straight-edge, and the plate being placed in the kerf, the opposite lines were easily drawn. A mixture of sulphuric acid *(oil of vitriol)* and water had been prepared, and, suffered to become cold; the proportions about one part of acid to six of water. The saw-plate was then placed in a common queens-ware dish, sufficiently large to contain it within the rim, and the acid and water were poured into it, so as just to cover the saw-plate; in about half an hour it was taken out, washed in clean water, and the wax scraped off, the lines having been bitten in to a sufficient depth to cause the plate to break with great ease. Some pieces which were left in too long, were eaten quite through, and the edges rendered rough and indented by the action of the acid.

At the ends of the plates, where holes are wanted, the wax was removed on each side; it was found necessary, sometimes, to insert these ends in the fluid, longer than the time allowed for the action on the lines; this however, depends upon the thickness of the plate. Circular saws may be readily made in this way, and their centres perforated to any size. Square or round holes may be made through a plate of one-fourth of an inch in thickness without the slightest difficulty. To effect this, after covering the part with wax, and scratching through it, in the way directed, a wall, or bank, of wax is to be placed round it, so as to form a cup, into which the liquid may be poured; this operation must be repeated on the opposite side, and when the lines are bitten to a good depth, the piece may be punched out.

Whenever the plate to be divided or perforated, is large, a bank of wax may be made to surround the parts, or the acid and water may be repeatedly washed over the lines, until the corrosion is sufficiently deep.

Care should be taken to employ good, clean wax; for the acid will find its way through it wherever there are any specks of dirt, and thus injure the face of the plate

Engravers' etching ground would be a better article than wax, but the latter is easily obtained, and, if pure and clean, will answer very well.

Saws and other tools of iron or steel, may be readily marked with the name of the owner of them, by the foregoing process.

Polytechnic and Scientific Intelligence.

ROYAL SOCIETY.

[Continued from page 179.]

June 14.—W. J. Guthrie, Esq. was admitted a fellow of the Society. A paper by W. Prout, M. D. was read on the ultimate composition of simple alimentary substances with some remarks on the analysis of organic bodies in general.

21.—T. Telford, Esq. was admitted a fellow of the Society. The reading of a paper on the diurnal variation of the needle, by S. H. Christie, Esq, which had been commenced on the preceding evening, was resumed and concluded. A paper also on the variation of the needle was read by Captain Sabine; and another on a new principle, by Mr. Frost; after which, the Society adjourned for the vacation, to meet again on the second Thursday in November.

Professor Barlow's New Achromatic Telescopes with Fluid Object-Glasses.

As we have on various occasions directed the attention of our readers to the great importance of the aplanatic fluid object-glasses of our countryman Dr. Blair, we are sure that they will partake in our gratification when they learn that two gentlemen, highly qualified both by their knowledge and their ingenuity, have been for some time directing the whole energy of their minds to this most interesting branch of practical science.

Mr. Blair, the only son of Dr. Blair, has for more than two years been busily engaged in constructing fluid object-glasses on the principles discovered by his distinguished father. We had an opportunity of looking through one of them, and though it was only a terrestrial object, yet it was easy to see its vast superiority to all ordinary achromatic instruments. Professor Barlow of Woolwich, to whom other branches of science owe great obligations, has likewise been occupied with the same subject, both theoretically and practically. He has had completed two telescopes, one 3¼ inches aperture, and another of 6 inches aperture. With the former he can separate all the double stars of that class which Sir William Herschel has pointed out as tests of a good 3½ inch achromatic; and with the other he can of course separate many closer double stars, but as it is only newly finished he has not yet had any favourable nights for observation.

The principle of construction of this telescope is different from that of Dr. Blair's, and possesses some important advantages, as it increases the focal power of the instrument without increasing the length of the tube, or by keeping the focal length the same, he can shorten the telescope very considerably, viz. by one-third at least of the usual length.

Professor Barlow will, we presume, submit these instruments to the Board of Longitude, whose especial duty it either is, or ought to be, to patronize with a liberal and active zeal every improvement on the telescope. If other nations have already been allowed to outstrip ours in this branch of rival manufacture, the time has now come for retrieving our character, and replacing us in the position from which we have been driven.

Professor Barlow informs us that he has been very greatly indebted for his success to the liberal scientific views and practical ingenuity of Messrs. W. and T.

Gilbert, mathematical instrument makers to the Honourable East India Company, and we have no doubt, from our own knowledge of their ingenuity and enterprise, that these able artists will now take a more prominent place in their profession than they have hitherto done. They are now occupied in constructing for the Commissioners of the Scottish Light-houses one of the polyzonal or built up lenses, invented by Dr. Brewster. This lens is to be made of flint glass, and is to have a diameter of no less than three feet. One of the zones has been for some time finished, and we expect that it will be completed in such a manner as to advance the reputation of the artists, and do honour to the arts of Great Britain.

Brewster's Edin. Jour.

Analysis of a Powder, which is sold in Paris under the name of Colour, and used in giving trinket gold, the colour of fine gold.

Cupidity and ignorance, having often issued in commerce, under different names, a multitude of more or less noxious substances, to which extraordinary properties have been attributed; and the credulous public, having no suspicion of the dangerous properties which these substances often possess in a very high degree, and according to which they exert a specific agency, are frequently exposed to the most serious accidents. Secret preparations of this kind, cannot be too well made known, nor can too much publicity be given to their composition, and the analysis that may be made of them; the knowledge of the results of which, may be so eminently useful to society. The powder which the trinket-manufacturers used to apply for the purpose of colouring gold, was composed of marine salt, nitrate of pot-ash, and alum; but, for some time back, another substance has been vended, the composition of which, is different.

This powder is of a dirty white colour, having a tinge of red, its taste is salt, and like that of common sea salt, but it leaves a disagreeable metallic taste in the mouth; and it sensibly attracts moisture from the air. Its analysis has furnished the following results, Twenty grammes of it have yielded,

Of pure white oxide of arsenic - -	2,135
Alum, with a base of potash, - - -	4,190
Marine salt - - - - - - -	15,560
Oxide of iron and argil, - - - -	0,115
	20 grs.

If this powder be really used for colouring gold, as I have been assured, the oxide of arsenic, I should think, can have no effect in that way.—*M. J. L. Casaseca.*

Note by M. D'Arcet.—I have several times had occasion to examine the saline composition known under the name of *colour*, which is employed by the toymen, for giving to trinket gold, the beautiful yellow colour of fine gold. The following is the result of my analysis, in round numbers:

Saltpetre, - - - - - - -	40
Alum - - - - - - -	25
Sea-salt, - - - - - - -	35
	100

I was not aware that any change had been made in the composition of this mixture. If the powder, examined by Mr. Cassaseca, be now used for colouring gold, it can only have been adopted of late, and since fashion has introduced the taste, and rendered necessary the employment of variously coloured alloys of gold with silver, copper, iron, antimony and platina. M. Cassaseca's observations appear to me to be very important, and will, without doubt, induce authorities to adopt measures of administration for obliging the persons who prepare, vend, or employ the new composition in question, to employ all the necessary precautions against the danger arising from the use of a mixture containing so much oxide of arsenic.

[*Annales de Chimie, et de Physique.*

Distribution of Rewards at the Exhibition of National Industry. Paris, 3 Oct. 1827.

The national productions of France in the various departments of the arts, sciences, aud manufactures, displayed at the late exhibition in Paris, have been honoured with the warmest approbation of His Majesty, Charles Xth, and a numerous list of artizans, have received the king's honorary rewards for their excellent productions.

Twelve artizans have received tho decorations of the legion of honour.—Twenty-two have had gold medals adjudged to them.—Seventy-one silver medals, and sixty nine medals in bronze.—These rewards were for various improvements, connected with the manufacture of fabric as silk, wollen, cotton, linen, &c. which includes spinning, weaving, and making of lace,

For works performed in metals, ten gold medals; twenty seven medals in silver, and fifty eight in bronze.

For improvements in machinery, two medals in gold, eight in silver, and eleven in bronze.

For mathematical and musical instruments, seven gold medals; five silver ones and twenty in bronze.

For discoveries in chemistry, four gold medals, eleven silver ones and twenty-four in bronze.

For productions in the fine arts, two gold medals, eleven silver medals and twelve in bronze.

For the manufacture of China and pottery ware, two silver medals, and six in bronze.

And for sundry arts including printing, two gold medals, four silver ones, and seventeen in bronze.

What would be the effect of such an exhibition in London ?—Edit.

False Fact in Physics.

We are great searchers after every thing that partakes of novelty in science; and as such, could not but admire the following singular discovery which has been made by John Harrison Curtis, Esq. and published by the above erudite author in the new edition of his work on the ear. What may not be expected from a gentleman so profoundly versed in physical science ?

"That sound can only be conveyed through the medium of air, is fully confirmed by the experiments of the diving-bell; for if a sonorous body is placed in it, as a bell for example, in consequence of its being *exhausted of air*, no sound is produced, nor can the ringing of the bell be heard."

Chlorure d'oxide de Sodium.

As some controversy has arisen relative to the true chemical name of this wonderful disinfectant, we gladly avail ourselves of the preface to Mr. Scott's new translation of Labarraque's work, for its analysis. He says that it is 73·53 dry chloride of sodium, 26·47 neutral chlorate of soda with an excess of chlorine, equal to twice the bulk of the water. "The impossibility of fixing any appropriate appellative, to a compound of this nature, has induced me," observes Mr. Scott, "in the present edition, to substitute for the author's, a term merely referable to the two principles of which it is composed. From other experiments, it appears that the salts contained in this solution have no share in its disinfecting properties, which are produced exclusively by the chlorine; their presence merely preventing that sensible development of gas, which, by other methods, creates the unpleasant effects usually experienced from chlorine fumigation."

Fogs of the Metropolis.

The following may be considered as a rational theory of vaporous exhalations arising from the atmosphere being colder than water.

1. Fogs will be most frequent in autumn, after the earth has been heated during the summer, the air cooling faster than the earth.

2. Fogs will be greatest after the hottest summer.

3. Fogs shew that the air has become suddenly colder, and therefore are a sign of snow.

4. Fogs will be rare in hot climates, where the air is usually very hot.

5. Fogs will be very frequent in the Arctic regions, where the sudden depression of temperature is enormously below the mean temperature.

6. Fogs will be most frequent over shallow water which sooner partakes of the temperature of the bottom than the deep water. The end of the deep water is known near the banks of Newfoundland, by the sudden commencement of the fogs. The thick fogs which appeared, during Captain Franklin's last expedition, prove that the sea is very shallow, and the mean temperature not very low, upon that part of the Arctic coast.

We have noticed the above subject to advert to an ingenious hypothesis that has been put forth, by a contemporary during the past month. He says, "if the London fogs have increased during late years, it will prove either that the mean temperature has increased, or that the variations of temperature have increased, or that a disproportion of temperature between the water and air has increased, or that the Thames has diminished in depth.

It is my belief that the last has occurred, partly from the natural rise of all embanked river beds, and partly from the effect of Waterloo Bridge. This bridge is unhappily placed near a bend of the river, and it is to be feared that the alignment of the arches of the other bridges and the course of the current has not been duly considered. The only remedy is to narrow the channel, so as to increase its depths, upon some such plan as Colonel French. The quays of the insignificant Seine are open, the Thames is inaccessible. It is, however, very dubious whether that great work would pay as a commercial speculation.

Test of Nitric Acid.

Dr. Liebeg proposes the following process for detecting the presence of nitric acid: the fluid to be examined is to be mixed with as much sulphate of indigo as will give it a distinct blue colour, and after adding a few drops of sulphuric acid, the mixture is to be boiled.

If the fluid contains a nitrate, the blue colour will be discharged; or only rendered yellow, if the quantity of nitrate is very minute. Dr. Liebeg states that by this process, nitric acid may be detected, when there is not more than a four-hundredth of it present; by adding a little common salt to the fluid before applying the heat, even a five-hundredth of nitric acid may readily be detected. *Phil. Mag. and Annals.*

New Register Rain-Gauge.

Mr. Bevan has invented a rain-gauge, in which the collecting vessel has the form of an inverted cone, with a base twelve inches in diameter. From the lower end of this vessel passes a tube three-fourths of an inch in diameter, to the receiving cylinder, six inches in diameter, and thirty-six inches deep. In the receiving cylinder there is a copper float about nine and a half inches in diameter, and two inches high, having a socket on the middle of the upper side to support a light rod of deal about five feet long; near the upper part of which is fixed a small frame with friction rollers to support a blacklead pencil. The pencil is kept upon the roller by a small weight, and is also pressed forwards by another small weight against a sheet of paper, which is fastened upon a brass cylinder two feet long, and five inches in diameter. The brass cylinder is connected by a line and pulley-wheel with a time-piece, so as to revolve uniformly at any space that may be required. The whole of the apparatus, except the first mentioned conical vessel, is placed under cover. The deal rod which carries the pencil is about four inches wide, and one-fourth of an inch thick, and passes between two vertical guides to insure the parallel position of the pencil. The moment the rain begins to fall into the collector, it is conveyed by the tube into the receiving cylinder, and begins to raise the float, and with it the deal rod with its pencil, which makes an oblique line on the paper, compounded of the vertical motion of the pencil and the horizontal motion of the surface of the brass cylinder, and indicates the quantity of rain fallen by the total height of the oblique line, and the rate of falling by the angle of obliquity, and the time of the beginning and end of each shower by the distances along the line. The only care necessary is to wind up the time-piece regularly, and to take off the paper from the cylinder and replace it with a fresh sheet, marking the time on the paper when it is put on.

New Patents Sealed in 1827.

To James Smethurst, of New Bond-street, in the county of Middlesex, lamp manufacturer, for an improvement or improvements upon lamps—6 November—2 months.

To Frederick Foveaux Weiss, of the Strand, in the city of Westminster, and county of Middlesex, surgical instrument maker, for his invention of certain improvements in the construction of spurs—6th November—2 months.

To James White, of Paradise-street, Lambeth, in the county of Surrey, engineer, for his invention of a machine or apparatus for filtering, which he denominates an artificial spring—8th November—2 months.

To John Platt, of Salford, near Manchester, in the county of Lancaster, fustian dresser, by virtue of certain communications made to him by a foreigner residing abroad, for an invention of which he is in possession, of certain improvements in machinery for combing wool and other fibrous materials—10th November—6 months.

To William Collier, of Salford, in the county of Lancaster, fustain shearer, in consequence of certain communications made to him by a foreigner residing abroad, for an invention of certain improvements in the power loom for weaving—10th November—6 months.

To John Walker, of Weymouth-street, in the parish of St. Mary-le-bone, in the county of Middlesex, esq. for his invention of an improved castor for furniture—17th November—6 months.

To Henry Pinkus, of the city of Philadelphia, in the state of Pensylvania, in the United States of America, gentleman, for his having invented or found out an improved method of purifying carburetted hyhrogen gas, for the purposes of illumination—17th November—6 months.

To Mr. Samuel Sevill, of Brownshill, in the parish of Bisley, in the county of Gloucester, clothier, for his invention of certain improvements applicable to raising the pile and dressing woollen and other cloths—20th November—6 months.

METEOROLOGICAL JOURNAL, FOR OCTOBER AND NOVEMBER, 1827.

1827.	Thermo.		Barometer.		Wind.	Weather.
	Max	Min.	Morn.	Even.		
OCT						
26	61	51	29,90	29,73	S. W.—S.	Cloudy
27	62	50	29,61	29,36	S	Ditto—sun—damp
28	50	42	29,30	29,55	N. E.	Rain . 32
29	50		29,72	29,81	N. E.—N. W	Fair—slight frost
30	50		29,74	29,57	W.—N W	Cloudy—fog—rain ·7
31	51		29,56	29,66	N W	Ditto—fair—wind
NOV						
1	44	34	29,82	29,71	N—S W.—W	Ditto—ditto—ditto
2	50	34	29,65	29,91	S. E.—N	Cloudy—rain ·12
3	51	40	29,91	29,90	W.—W N.	Ditto—fog
4	56	47	29,95	30,02	W	Fair—Clouds
5	56	50	30,13	30,13	W	Ditto—ditto—rain .25
6	57	49	30,10	30,02	W—N W	Ditto—ditto
7	48	44	29,99	29,95	N—N E	Cloudy— damp
8	48	43	29,92	29,86	N.W.	Ditto—ditto
9	53	46	29,72	29,65	W	Ditto—ditto
10	54	48	29,73	28,82	N. E.	Ditto— rain .25
11	57	42	29,76	29,83	W—N W	Cloudy—fair
12	51	40	29,94	29,95	N. W.—W	Fair—slight shower
13	60	50	29,95	——	N. W.	Cloudy—damp
14	49	38	29,92	29,78	W—N W	Ditto—rain .30
15	50	40	29,63	29,42	S E—S	Cloudy—fog
16	47	40	29,33	29,52	S. E.—E	Rain ·25—diito
17	50	39	29,62	29,73	S. E.	Fair
18	49	39	29,83	29,99	E.	Ditto—thik fog
19	52	46	30,04	30,02	S. E.—S.	Cloudy—dmp
20	48	44	29,96	29,92	W—N W	Ditto—ditto
21	40	28	30,02	29,92	N. E.	Fair—frost
22	35	23	29,72	29,60	N. W.	Frost—snow
23	34	22	29,54	29,49	N.—W.	Ditto—ditto—slight
24	33	25	29,63	29,86	N. W.	Ditto—fair

Hitchins. WATSON PERKS.

D.	H.	M.	
1	0	0	⊙before the Clock 10' 54''
2	22	50	0 Ecliptic opposition or ☻ Full Moon.
2	22	50	0 Ecliptic Opposition or ● Moon.
3	4	0	0 ♃ in conj with λ id Virgo
4	1	16	0 ☿ in cynj. with γ in Scorpio
5	0	0	0⊙before the Clock 0' 25''
6	2	20	0 ☿ in conj.with 2 β in Scorpio
6	21	0	0 ☿ in conj.with 1 β in Scorpio
8	0	0	☾ in conj. with 1 α in Cancer
8	1	0	0 ☾ in conj. with 2 α in Concer
8	23	0	0 ☾ in conj. with ο in Leo
9	0	0	0 ☿ Stationary
9	9	0	0 ☾ in conj. with π in Leo
10	0	0	0⊙ before the Clock 7 10''
10	8	0	0 ♀ in conj. with λin Sagit.
11	3	23	0 ☾ in □ last quarter
11	11	0	0 ☾ in coej· with υ in Leo.
12	13	0	0 ☿ inconj.with 1 β in Scorpio
12	14	0	0 ☿ in conj.with 2 β in Scorpio
13	15	0	0 ☾ in conj. wish α in Virgo
14	15	0	0 ☾ in conj. with λ in Virgo
14	18	0	0 ☾ in conj. with ♄ long. 6° in Scorpio ☾ lat. 13' N. ♄ lat. 1° 6' N. diff. lat. 53'
15	0	0	0⊙ before the Clock 4' 49''
15	3	0	0 ♀ i conj. with 1 γ in Sagit n

D.	H.	M.	S.	
15	4	0	0	☾ in conj with 2 α in Libra
15	6	0	0	☿ in cuuj.with γ in Scorpio
15	21	0	0	☾ in conj. with 4 ξ in Libra
16	10	0	0	☾ in conj with 1 β in Scorpio
16	10	0	0	☾ in conj.with 2 β in Scorpio
12	12	0	0	☾ in conj. with ☿ long. 3o in Sagitt. ☾ lat. 2o 29' N. ♀ lat. 2° 21' N. eiff· lat. 1'
18	2	5	0	Ecliptic conj. or ● New Moon
18	16	54	42	♃'s Satt. will immarge
20	0	0	0	⊙ beforc the Clock 2' 21'
20	10	0	0	☽ in conj. with β in Capri
22	1	31	0	⊙ enters Capricornus
24	17	47	0	☽ in □ first quarter
25	0	0	0	clock before the ⊙ 10 sec
25	17	0	0	☾ in conj with ε in Pisces
25	18	48	14	♃'s first sat will immerge
25	19	0	0	♂ in conj. with λ in Virgo
28	9	0	0	♀ in conj. with ♅ long. 26o in Capri ♀ lat. 1o 28' S ♅ lat. 31' S. diff. lat· 57'
29	19	0	0	Mer in conj. with δ in Oph.
29	20	0	0	☾ in conj. with ε in Jaurus
30	0	0	0	clock before the ⊙ 2 in 38 see

The waxing moon ☾—the waning moon ☾.

Rotherhithe. J. LEWTHWAITE.

METEOROLOGICAL JOURNAL, for October and November, 1827.

1823.	Thermo.		Barometer.		Rain in inches.
	Hig.	Low.	High.	Low.	
Oct.					
26	58	45	30,00	29.88	15,
27	60	47	29,06	29·56	
28	49	45	29,05	29,30	,075
29	49	30	2,0 3	29,76	.575
30	50	305	29,04	26,70	,05
31	53	37	29,01	29,60	.025
Nov					
1	44	33	29.90	29,80	
2	49	35	29.99	29 68	
3	35	30	30 00	stat.	, 025
4	53	35	30.13	30,03	
5	55	43	30,26	30,20	,075
6	57	45	30,18	30,15	
7	50	46	30,07	30,04	,1
8	52	47	30,00	stat.	
9	50	42	29,80	29,96	
10	53	45	29,90	29,77	
11	58	45	29,88	29,84	,1
12	51	34	30,04	30,00	
13	63	35	30,05	30,04	,025
14	52	37	30,00	29,88	
15	48	30	29,70	29,50	,225
16	47	34	29,50	29,38	,025
17	51	31	29,80	29,76	,075
18	52	34	30,00	29,89	,025
19	52	38	30,10	stat.	
20	49	43	30,10	29,96	
21	40	33	30,06	stat.	,05
22	35	24	29,80	29,62	
23	32	195	29,60	29,53	'325
24	36	23	29,83	29,66	
25	38	22	29,94	29,87	,025

LOWER EDMONTON. CHARLES H. ADAMS.

LITERARY AND SCIENTIFIC NOTICES.

Dr. Lardner, the Professor of Mechanical Philosophy in the New University, announces for publication, a Short Series of Popular Lectures on the Steam Engine. The author professes to have treated the subject in the most familiar style, and to have rendered the work as free as possible from mathematical reasoning and technical phraseology in order to suit the work to general readers.

Lieutenant Siborn, Assistant Military Secretary to the Commander of the Forces in Ireland, is preparing for publication, a Practical Treatise on Topygraphical Surveying and Drawing, with instructions in Topygraphical Modelling; or the art of representing the surfaces of countries in relief.

The fourth number of Mr. Brockedon's work, the Passes of the Alps, has been published, containing the pass of Mount St. Gothard. Among the views will be found—1. The Devil's Bridge, (engraved by Finden) a romantic scene. 2. Bellinzona, from Sementina, a pastoral scene, by the same engraver. 3. Ponte Tremola (engraved by J. C. Varrall). 4. Airola, a mountainous prospect (engraved by R. Brandard). 5. The Summit of the Pass of Mount St. Gothard (T. Willmore). 6. Valley of the Reuss (E. Jeavons). 7. Tell's Chapel from Lake Uri (E. Finden). 8. Tell's Tower Altorf (by the same artist), full of spirit and excellence.

The above plates with a map of the route from Lago, Maggiore, to Altorf, complete the embellishments of this number, the whole of which are executed in the highest style of excellence.

Announced as preparing from the Press of the University, Cambridge, a Treatise on the Geometrical Representation of the Square Roots of Negative Quantities, by the Rev. John Warren, A. M. Fellow and Tutor of Jesus College. The purport of the work is to shew that those quantities in Algebra, usually termed Imaginary Quantities or Impossible Roots, have a real existence in Geometry; and that the impossible sign prefixed, merely signifies that the direction in which they are drawn, is at right angles to that in which positive and negative quantities are drawn.

Proposals are in circulation for the establishing of a Scientific and Literary Institution, in the populous neighbourhood of Mary-le-bone, in any spot that may be considered the most central. The plan embraces the forming of a well regulated library of reference, the best of the new publications, and the principal of the Foreign and English journals, literary and scientific.

The institution is to be supported by an admission fee, and an annual subscription; the choice of members to be conducted on principles of careful selection; courses of lectures to be delivered on popular Branches of Literature and Science; readings from the French, Italian, Spanish, and German Literature, with lectures on those languages by eminent foreign linguists.

The management of the Institution is to devolve on a Committee to be chosen annually, assisted by a librarian, secretary, and treasurer.

Mr. John Farey's Treatise on the Steam Engine, is at length published, and from the extensive knowledge and experience of the author in that branch of the arts, we have no doubt will be found to be a valuable acquisition to practical science. The plates illustrative of the subjects are twenty-five in number, and the diagrams are engraved in the best style, by the first artist. The work altogether is such, as will entitle it to a most honourable reception.

Houldsworth's Impd. Spinning Machy.

Fig. 1.

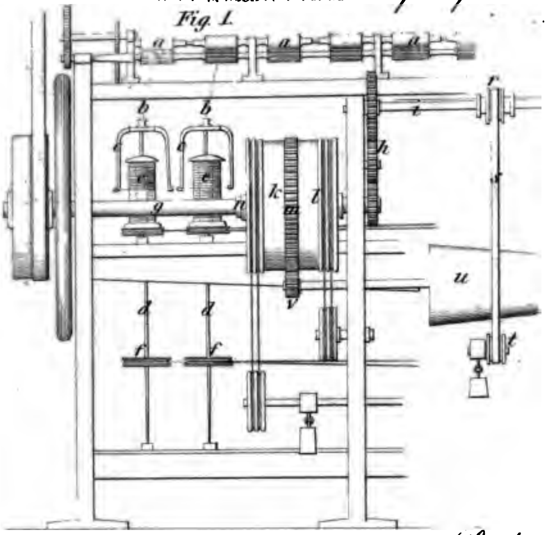


Fig. 2.

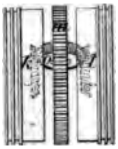
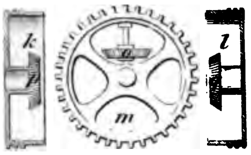


Fig. 3.



Parker's Impd. Park Gate.

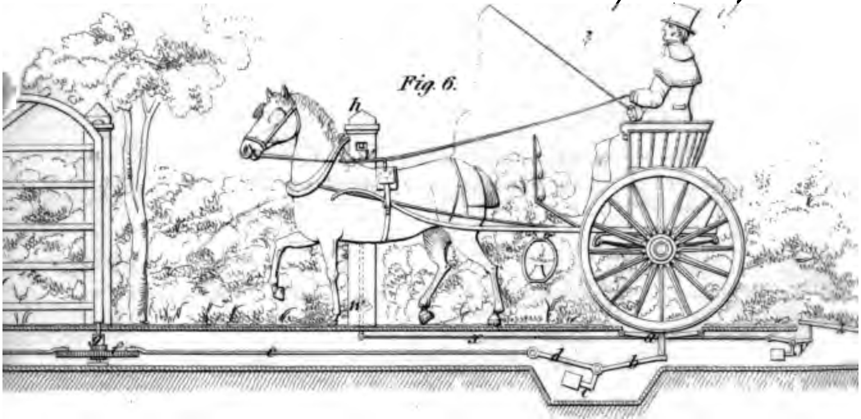


Fig. 6.

Wilks & Eccroyd's Machine for making Nails.

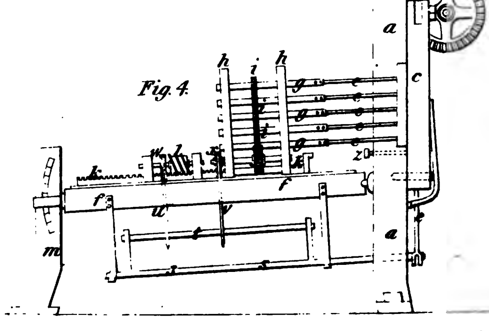
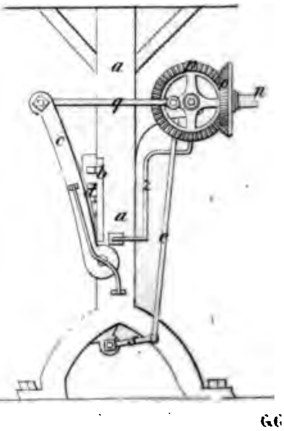


Fig. 4.

Fig. 5.



THE

London

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No. LXXXVII.

Recent Patents.

To HENRY HOULDSWORTH, *the Younger, of Manchester, in the County of Lancaster, Cotton Spinner, for his Invention of certain Improvements in Machinery, for giving the taking up, or winding on motion to Spools, or Bobbins and Tubes, or other Instruments, on which the roving or thread is wound, in Roving, Spinning, and Twisting Machines.*

[Sealed 16th January, 1826.]

IT is an important object in the working of roving, twisting, and spinning machines, to regulate the taking up, or winding of the yarn upon the bobbins to the delivery of the drawing rollers; that is, that the length of the roving or spun yarn wound upon the bobbin or spool in any given space of time, shall be exactly equal to the length of the material delivered from the drawing rollers for spinning, so as to prevent either extraordinary tension, or laxity of the yarns when winding on the bobbins.

In spinning machines of the ordinary construction, this object is attained by careful adjustment of the parts, but when the machine is to be applied to the spinning of thicker or thinner, that is, finer or coarser yarn or rovings, then other adjustments of the machine are required, which require very considerable labour and difficulty to accomplish, and without which the yarns would be subject to the inconvenience above mentioned, of too little, or too great tension, in winding it upon the spools or bobbins.

In order to remedy this evil, and enable an ordinary spinning machine to be capable of this adjustment by simple means, the patentee has proposed a plan, which will be best understood by first explaining the usual construction of a roving or spinning machine, of the kind called a fly-frame.

The cotton about to be spun having been prepared in the carding engine, and brought into a thin filamentous web, which is usually deposited in a can, though sometimes slightly twisted, and wound on to a copt, the end of the web or slubbing thus prepared, is raised from the mouth of the can or delivered from the copt, and passed between several pairs of drawing rollers, which are placed behind each other upon the same level, on the upper part of the fly-frame or machines now under consideration. These drawing rollers usually consist of three series in pairs, extending the whole length of the machine, and revolving with different velocities. The first pair of rollers receives the end of the filamentous web, from the can, or rope of slubbing from the copt, and by their revolutions conduct it forward to the second pair of rollers, which turning faster than the first, stretch the web or slubbing, and draw out the filaments, the third pair of rollers revolve faster than the second, and elongate the filaments still more, and thus prepare it for spinning. Such is the apparatus and process called drawing, which the material must be subjected to previously to its being spun.

From the third pair or front drawing rollers, the filament descends considerably refined, that is, thinned and extended, and is passed through the eye and arm of a flyer, mounted upon the top of a spindle. The spindle is an upright rod having a small pulley or whirl at its lower part, round which a cord passes from a rotatory drum, for the purpose of giving the spindle a very rapid rotation, and the flyer being affixed to the top of the spindle revolves with it. Upon the spindle is placed a loose bobbin or tube, intended to receive the roving or yarn when spun.

The rapid rotation of the spindle and flyer, causes the filament as it descends from the drawing rollers to be twisted or spun into a thread, but if the bobbin moved with the same speed as the flyer, the thread could not be taken up, that is, it could not be wound upon the bobbin after being spun. It will be perceived however, that the bobbin being loose upon the spindle, will partake only partially of the rotation of the spindle, revolving with it by the friction of slight contact, but not so rapidly; hence as the flyer goes round more swiftly than the bobbin, the thread or roving becomes taken up, that is wound upon the bobbin; the weight of the bobbin being so adjusted, that its friction shall be just as much as will retard its rotation sufficiently to take up the roving in the same time that an equal length of the filament is delivered from the drawing rollers.

The rotation of the bobbin therefore being dependant entirely upon the velocity of the spindle, and the bobbin being adjusted to take up a certain length of yarn or roving in a given time, if the weight or thickness of the roving be varied from that quality which the machine is accustomed to spin, then the proportioned velocities of the spindle, bobbin, and drawing rollers, will no longer remain correct, or the yarn be capable of winding upon the bobbin with the proper degree of tension.

To remedy this inconvenience, and enable any machine to spin and wind various qualities of yarn or roving, the present improvement is proposed, by which the mere exchanging of a pinion will immediately adjust the rapidity of taking up, or winding, to the quality of the yarn required to be spun.

Plate XII, fig. 1, represents a portion of a fly-frame for spinning and roving, with the improvements adapted thereto, in its most simple form; *a*, *a*, are the front drawing rollers, turning upon bearings on the top of the machine, and worked by a train of toothed wheels in the way drawing rollers are usually actuated.

From the drawing rollers, the filaments of cotton or other material *b*, *b*, are brought down to, and passed through the arms of the flyers *c*, *c*, mounted on the tops of the spindles *d*, *d*, which spindles also carry the loose bobbins *e*, *e*. In the ordinary mode of constructing such machines, the spindles are turned by cords or bands passing from a rotatory drum round their respective pullies or whirls *f*, and the loose bobbins *e*, turn with them by the friction of their slight contact to the spindle, as before said; in the improved machine, however, the movements of the spindle and the bobbin are independent and distinct from each other, being actuated from different sources.

The main shaft of the engine *g*, turned by a band and rigger as usual, communicates motion by a train of wheels *h*, through the shaft *i*, to the drawing rollers at the reverse end of the machine, and causes them to deliver the filaments to be twisted. Upon this main shaft *g*, is mounted a cylindrical hollow box or drum pulley, from whence one cord passes to drive the whirls and spindles *f*, and *d*, and another to drive the bobbins *e*.

This cylindrical box pulley is made in two parts *k*, and *l*, and slipped on to the axle with a toothed-wheel *m*, intervening between them. The box and wheel are shewn detached in fig. 2, and partly in section at fig. 3. That portion of the box with its pulley marked *l*, is fixed to the shaft *g*, but the other part of the box and its pulley *k*, and the toothed wheel *m*, slide loosely round upon the shaft *g*, and when brought in contact and confined by a fixed collar *n*, as in the machine shewn at fig. 1, they constitute two distinct pullies, one being intended to actuate the spindles, and the other the bobbins.

In the web of the wheel *m*, a small bevel pinion *o*, is mounted upon an axle standing at right angles to the shaft *g*, which pinion is intended to take into the two bevel pinions *p*, and *q*, respectively fixed upon bosses, embracing the shaft in the interior of the boxes *k*, and *l*. Now it being remembered that the pinion *q*, and its box *l*, are fixed to the shaft *g*, and turn with it, if the loose wheel *m*, be independently turned upon the shaft, with a different velocity, its pinion *o*, taking into *q*, will be made to revolve upon its axle, and to drive the pinion *p*, and pulley box *k*, in the same direction as the wheel *m*; and this rotatory movement of the box *k*, and wheel *m*, may be faster or slower than the shaft *g*, and box *l*, according to the velocity with which the wheel *m*, is turned.

Having explained the construction of the box pullies *k* and *l*, which are the particular features of novelty claimed under this patent, their office and advantage will be seen by describing the general movements of the machine.

The main shaft *g*, being turned by the band and rigger, as above said, the train of wheels *h*, connected to it, drives the shaft *i*, which at its reverse end has a pinion, (not seen in the figure,) that actuates the whole series of drawing rollers *a*. Upon the shaft *i*, there is a sliding pulley *r*, carrying a band *s*, which passes down to a tension pulley *t*, and is kept distended by a weight. This band *s*, in its descent, comes in contact with the surface of the cone *u*, and causes the cone to revolve by the friction of the band running against it. The pulley *r*, is progressively slidden along the shaft *i*, by means of a rack and weight not shewn, but well understood as common in these kind of machines, and which movement of the pulley is for the purpose of progressively shifting the band *s*, from the smaller to the larger diameter of the cone, in order that the speed of its rotation may gradually diminish as the bobbins fill by the winding on of the yarns. This however, and its object being well understood, and forming no part of the present invention, we shall not further explain.

At the end of the axle of the cone *u*, a small pinion *v*, is fixed, which takes into the teeth of the loose wheel *m*, and as the cone turns, drives the wheel *m*, round upon the shaft *g*, with a speed dependant always upon the rapidity of the rotation of the cone. Now the box pulley *l*, being fixed to the main shaft *g*, turns with one uniform speed, and by cords passing from it over guides to the whirls *f*, drives all the spindles and flyer, which twist the yarns with one continued uniform velocity; but the box pulley *k*, being loose upon the shaft, and actuated by the bevel pinions within, as described, is made to revolve by the rotation of the wheel *m*, independent of the shaft, and with a different speed to the pulley box *l*: and cords passing from this pulley box *k*, over guides to small pullies under the bobbins, communicate the motion, whatever it may be of the pulley box *k*, to the bobbins, and cause them to turn, and to take up or wind the yarn with a speed derived from this source, independent of, and different from the speed of the spindle and flyer which twists the yarn.

It will now be perceived, that these parts being all adjusted to accommodate the taking up movements to the twisting or spinning of any particular quality of yarn intended to be produced, any variations between the velocities of the spinning and taking up, which another quality of yarn may require, can easily be effected, by merely changing the pinion *v*, for one with a different number of teeth, which will cause the wheel *m*, and the pulley box *k*, to drive the bobbins faster or slower, as would be required in winding on fine or coarse yarn, the speed of the twisting or spinning being the same.

This desirable object is effected in its most simple way by the mechanism above described, and which is extremely simple when considered abstractedly from the ordinary movements of the spinning machine. There are however other modes of effecting the object upon the same principle, which are within the contemplation of the patentee, but as they only differ in the employment of pullies within a box, instead of the pinions already explained, we do not consider it necessary to extend the description of this invention further.

It is therefore to be understood that the present improvement, consists in the adaptation of a fast and loose pulley to the main shaft of a fly-frame, or other such kind of spinning machine, and of causing these pullies to turn with different speeds, by means of gear, and a pinion, for the purpose of giving different velocities to the flyer, and the bobbin.

[*Inrolled July,* 1826.]

To JOHN SEAWARD, *and* SAMUEL SEAWARD, *of the Canal Iron Works, in the Parish of St. Ann, Poplar, in the County of Middlesex, Engineers and Co-partners, for their Invention of a New or Improved Method or Methods of Propelling Boats, Crafts, and all kinds of Vessels on Canals, Rivers, and other shallow waters.*

[Sealed 2nd November, 1825.]

THIS invention is the adaptation of a large star or spur wheel to a steam vessel, and which is also applicable to a loco-motive carriage; the extremities of the arms of the wheel being placed in contact with the ground, or the bed of a shallow stream of water, and the wheel made to revolve upon its axis, the resistance of the ground against the end of each arm of the wheel as it revolves, will cause the vessel or carriage to be propelled forward.

The patentees state that there are many ways of applying this spur wheel to the purpose intended, but they have thought it sufficient to exhibit one mode only, which is shewn in Plate XIII, at fig. 1.

a, *a*, may be supposed to represent part of a vessel, floating upon a canal or shallow stream of water; *b*, *b*, is the ground or bed of the canal; *c*, the spur wheel, revolving upon its axis, and its pivots supported in a pair of arms *d*, which have their joint or fulcruum and bearings at *e*. The wheel and the arms are placed in a box or recess within the boat, which recess is open at the bottom, and by these means the wheel is capable of rising and falling, so as to accommodate itself to the inequalities of the ground or bed of the river. Upon the axle of the wheel *c*, there is a rigger or drum, and a corresponding

PLATE X

Seaward's Imp^{ts} in Propelling.

Fig. 1.

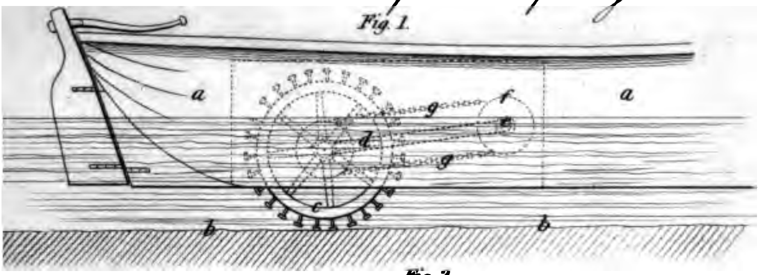
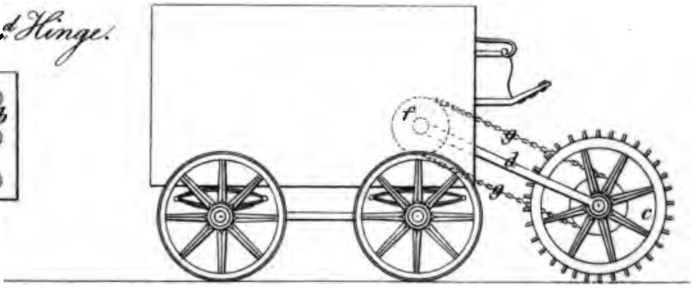
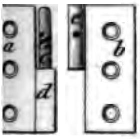


Fig. 2.



k's Imp^{d} Hinge.



Deyerlein's Imp^{d} Weighing Machines.

Fig. 5.

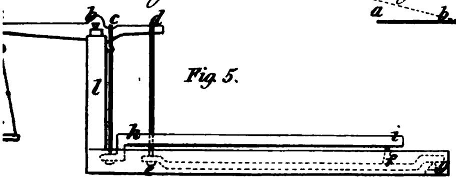
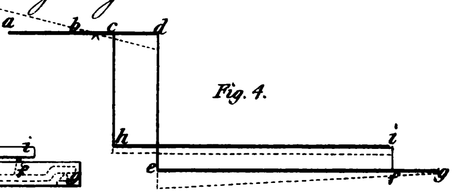
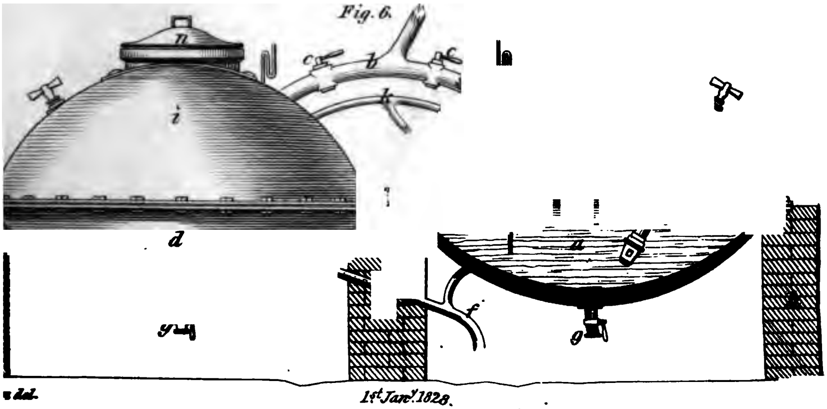


Fig. 4.



Howard's method of crystallizing Sugar in vacuum.

Fig. 6.



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rigger at *f*, over both of which an endless band or chain *g*, is passed, and the rigger *f*, being turned by a crank or any other contrivance connected to a steam engine, the spur wheel *c*, will be made to revolve, and as it goes round the ends of the pins or spurs, set radially in its periphery, coming successively in contact with the ground, will cause the vessel to be propelled forward.

This spur wheel may be placed in any convenient part of the vessel either in the middle as shewn, or at the head or the stern: or two such wheels may be applied at the sides of the vessel, and suspended to swinging arms, or attached in any other way that might be found convenient. The spur wheel itself may also be made without a circular rim, the ends of its arms or spokes answering the purpose of the pins or spurs above described, and these spurs being brought in contact with the ground, the rotation of the wheel will cause the vessel to be driven forward.

The same principle is described as applicable to the propelling of carriages on land, (though not contemplated in the title of the patent.) Fig. 2, shews a carriage with the spur wheel adapted to the purpose of loco-motion. Its construction is exactly like that above described, the axle being supported in arms that rise and fall upon their fulcruum joints. The wheel is driven by an endless chain or band, passed over two riggers, the hinder one being turned by a steam engine, or any other first mover within the carriage.

This contrivance is applicable to loco-motive carriages running either on rail-ways or common roads: the pins or stars of the wheel may either take into notches in the rail, or act immediately against the ground, and the wheel may be applied either at the front part, to draw the carriage as in the figure, or behind to push it forward.

The body of the vehicle is proposed to be supported upon springs, in order to prevent jolting, as it passes over slight inequalities in the road, and it may be made of any form or fashion that convenience or fancy may dictate, the invention consisting simply in the employment of the spur wheel as described.

[*Inrolled April,* 1826.]

To Benjamin Cook, *of Birmingham, in the County of Warwick, Brass Founder, for his Invention of certain Improvements in making or construeting hinges of various descriptions.*

[Sealed 19th January, 1826.]

The improved hinge described in the specification of this patent, is designed to rise as it opens, and the mode of effecting this rising is by a pin passed through the barrel of the hinge, the point of which acts in a spiral groove cut in the perpendicular spindle, or axle upon which the hinge turns.

The mode of constructing these hinges, is shewn in Plate XIII, fig. 3; *a,* is one leaf of the hinge; *b,* the other leaf detached; *c,* is the steel spindle or axle, on which the leaf *b,* is to turn. The lower part of this spindle is fixed into the socket *d,* but the socket *e,* being hollow slips on to the upper part of it, and the leaf *b,* turns upon it as an axis. A spiral groove is cut round a portion of the upper part of the spindle *c,* and when the socket *e,* of the leaf *b,* is put on to the spindle, a small pin is screwed into the socket *e,* the point of which protruding into the spiral groove, prevents the leaves from coming asunder, and when opening causes the leaf *b*, to rise by the pin acting in the spiral groove.

In order to conceal the open space between the two sockets *d*, and *e*, caused by the rising of the leaf *b*, when the hinge is expanded, a piece of thin tube is fixed to the upper part of the socket *d*, which covers the joint.

[*Inrolled July*, 1826.]

To James Fraser, *of Houndsditch, in the City of London, Engineer, for his Invention of an Improved method of constructing Capstans and Windlasses.*

[Sealed 25th February, 1826.]

The patentee has exhibited no drawings of his improved capstans and windlasses, but merely states that his invention consists of three particulars; viz. First, making the barrel hollow for the reception of wheel-work; Secondly, introducing wheels and pinions for the purpose of working occasionally with increased power; and thirdly, applying a bar on the outside of the barrel, to confine the rope or chain cable as the capstan or windlass winds it in.

If we understand this invention right, it must be nearly the same thing as the plan proposed by Captain Phillips, in his improved capstans, for which he obtained a patent, dated September, 1819, see our second vol. page 1, and Plate 1, excepting perhaps that the gear for gaining power is to be placed in a different part of the capstan.

When these slight variations in the mechanism of so simple an apparatus as a capstan or windlass, are called improvements, and published to the world under the sanction of a patent, the inventor should take the trouble of giving a drawing, by which his intentions may be clearly understood, which really cannot be definitely pointed out by this specification.

Something is said about placing a rim or wheel with bevel teeth upon the capstan, and connecting a pinion and shaft to it, for the purpose of working the pumps; but this has often been proposed before, and without doubt occasionally resorted to under such circumstances as rendered it necessary.

With respect to the confining bar or break which is to hold fast the cable, we are not aware either what is to be its form, or exactly how it is to be adapted.

[*Inrolled April*, 1826.]

To James Fraser, *of Houndsditch, in the City of London, Engineer, for his Invention of a New and Improved method of Distilling and Rectifying Spirits and Strong Waters.*

[Sealed 4th March, 1826.]

The object of the patentee appears to be the application of the heat carried off with the vapour from a still to the heating of the wash in a detached vessel, previous to its introduction into the still; and also where the still is heated by a surrounding chamber of boiling water or steam, to apply the heat of such steam as it passes off to the purpose of heating another still in which the spirit is undergoing the process of further concentration or of rectification.

By this mode of conducting the process of distillation, it is said that the expense of fuel is considerably economised, and the production of an empyreumatic flavour prevented, which in the ordinary modes of distillation, so frequently occurs to the great detriment of the spirit.

There are no drawings explanatory of any particular mode, by which this heated vapour is to be applied, indeed it is said that the apparatus may be constructed in a variety of ways: therefore as the same idea has been frequently suggested before, both in a general way, and also in peculiar modes of application, we are completely at a loss to define what are the particular features of novelty intended to be claimed by the patentee.

[*Inrolled May,* 1826.]

To JOSEPH CHESSEBOROUGH DYER, *of Manchester, in the County of Lancaster, Patent Card Manufacturer, for his Invention of certain Improvements in Machinery, for making Wire Cards, for Carding Wool, Cotton, Tow, and other fibrous substances of the like nature, and also certain Improvements on a Machine for Shaving and preparing Leather, used in making such Cards.*

[Sealed 19th December, 1825.]

THE subjects of this invention are certain improvements in, that is, modifications of, and additions to, the very ingenious machinery for making wire cards originally introduced into this country from America in 1811, by the present patentee, and which has been from that time till the present, in very successful operation at Manchester; and also a new modification of some of the parts of a machine, for splitting hides or leather, likewise imported by the present patentee about the same time.

The specification of this invention, which is extremely long, commences by stating that the proposed improvements cannot be understood without reference to a former patent granted in 1814, and on referring to the specification of the patent alluded to, which is still longer, we are almost in the same words again referred to a previous patent granted in 1811. The first part of the invention therefore, the improvements in the machinery for making wire cards, is involved in such a mass of explanation, and accompanied by such a numerous collection of elaborate drawings, that we have found it perfectly impracticable to give any-thing like a correct representation of the machine, and are in consequence reduced to the necessity of deviating from our usual course, and of substituting a general description of the mode of effecting the various operations requisite in the manufacture of wire card, by the several parts of the machinery under consideration.

The first thing to be done after having prepared the long pieces or fillets of leather, of suitable length, breadth, and thickness, for making the cards, is to stretch the leather, and hold it firmly; which is accomplished by winding the fillet of leather upon a roller or drum, like the wasp roller of a loom, and then conducting it upwards between guide rollers, to a receiving or work roller at top of the machine, where the fillet is held fast by a cramp, by which means the leather is kept tightly stretched.

Secondly, the holes are pierced in the leather to receive the wire staples or teeth of the card, by means of a sliding fork, the points of which are presented to the face of the leather, the fork is made to advance and recede continually, by the agency of levers worked by rotatory cams upon a revolving main shaft.

The points of the fork being thus made to penetrate into the leather, the holes for receiving the staples are pierced, and at regular distances, in correct order, by shifting the leather fillet so as to bring different parts of its surface opposite the points of the sliding fork. This is done by cams, or indented wheels and gear, which shift the guide rollers, and confining drums laterally, as they revolve, and consequently move the fillet of leather at intervals a short distance, so as to present to the points of the fork or piercer at every movement, a different part of the surface of the leather.

Thirdly, the wire of which the teeth or points of the card are to be made, is supplied from a coil on the side of the machine, and is brought forward at intervals, by a pair of sliding pincers, which are slidden to and fro through the agency of leavers actuated by rotatory cams on the main shaft. The pincers having advanced a distance equal to the length of wire intended to form one staple, or two points, this length of wire is pressed upon exactly in the middle by a square piece of steel, and being there confined, a cutter is brought forward, which cuts it off from that part of the wire held in the pincers.

The length of wire thus separated and confined, is now by a movement of the machine, bent up the sides of the square steel holder and shaped to three edges of the square, that is, formed as a staple; and in the same way, by the continued movements of the machine, a succession of pieces of wire are cut off, and bent into staples for making the teeth of the card as long as the mechanism is kept in action.

Fourthly, the wire staple thus formed is held with its points or ends outwards, closely contiguous to the forked piercer described above, and by another movement of the mechanism, the staple is protruded forward, its ends entering into the two holes made previously in the leather by the sliding fork.

While the wire staple is being thus introduced into the leather, its legs or points are to be bent, that is, formed with a knee or angle, which is the fifth object to be effected. This is done by means of a small apparatus consisting of a bar or bed, which bears up against the under side of the wire staple when it has been passed half way into the holes in the leather, and another bar above it, which being brought down behind the staple, bends it over the resisting bar to the angle required; that is, forms the knee in each leg. A pusher now acts behind the staple, and drives it home into the leather, which completes the operation.

The leather being thus conducted, and its position shifted before the piercer progressively, a succession of the above described operations of cutting the wire, forming the staple, passing it into the leather, and bending its legs to the angular form, produces a sheet of card of the kind usually employed for carding or combing wool, cotton, and other fibrous materials. It may be necessary to add, that as these wire staples are required to be set in the leathers sometimes in lines crossing the sheet, which is called ribbed, and at other times in oblique lines, called twilled, that these variations are produced by the positions of the notches or steps on the edge or periphery of the cam or indented wheel, which shifts the guide rollers that hold the fillet or sheet of leather as already described.

After the above observations, and explanation of the evolutions of the machine for making wire cards, it may suffice to say, that the improvements claimed under the present patent are certain slight modifications of, and additions to, the original machine, designed to facilitate its performances when worked by the power of a steam-engine, or any other first mover; and which novelties could not be rendered evident without a very particular knowledge of the parts, objects, and actions of this ingenious but complicated engine.

The latter clause in the title of this patent, refers to improvements in a machine for shaving and preparing the fillets or sheets of leather to be employed in making the cards. In the machine which constituted the subject of the former patent referred to, a knife was fixed with its cutting edge between two rollers, which guided the skin of leather or hide immediately to the knife edge, and caused it by that means to be split into two thicknesses. There appears however, to have existed a difficulty in adjusting the knife edge so as to split or shave the skin equally, or to any exact thickness; also of keeping the knife edge keen, or of replacing it correctly after sharpening. The present improvement, therefore, consists in affixing the blade of the knife to a bar, which may be turned back upon arms when the knife is to be sharpened, and which admits of shifting and replacing the knife without deranging the adjustment. It is also proposed, instead of the pair of guide-rollers, which conducted the leather to the cutters, to substitute a series of rollers which shall draw the skin of leather over a fixed bed, and that the skin shall be pressed against the edge of the knife, by an adjustable roller, attached to arms or levers for the purpose of allowing the pressure to be withdrawn when ever required.

[*Inrolled June,* 1826.]

To James Wilks, *of Rochdale, in the County Palatine of Lancaster, Tin-plate Worker, and* John Ecroyd, *of the same place, Grocer and Tallow-chandler, for their invention of an Engine for Cutting Nails, Sprigs, and Sparables, on an improved System.*

[Sealed 8th November, 1825.]

This engine is designed to cut wedge-formed pieces from the ends of narrow strips of plate iron : several strips being brought between the cutters at one time, and consequently several nails or sprigs are cut off at one operation.

The engine consists of a sliding carriage which conducts the strips of iron to the edges of the shears; and a moveable arm or cutter, which with the other operative parts of the engine are actuated by crank movements from a revolving shaft.

Plate XII, fig. 4, is a longitudinal view of the engine; fig. 5, a front view of the same ; *a, a,* is the main standard on the side of which is fixed the steel plate *b,* that constitutes one edge of the shears; *c,* is a lever or arm vibrating upon a fulcruum fixed in the standard, which arm carries the curved steel cutter *d*; *e, e, e,* are the strips of plate iron intended to be cut into nails or sprigs by the action of the shears; *f, f,* is a bed carrying the rack and its appendages, by means of which, the strips of plate iron are progressively brought forward to the shears.

The strips *e*, *e*, *e*, intended to be cut into nails or sprigs, have one of their ends made fast to shafts *g*, *g*, *g*, turning in standards *h*, *h*, which severally carry the pinions *i*, *i*, *i*, taking into each other. The standards *h*, *h*, constitute the carriage of the strips, which carriage is attached to the rack *k*, *k*, and slides with it on the bed *f*, *f*.

Upon the bed is fixed two other standards, carrying a shaft with an endless screw *l*, the rotation of which endless screw moves forward the rack *k*, with the standards *h*, *h*, the pinions *i*, arms *g*, and strips of plate iron *e*, to be cut.

The bed *f*, it will be seen, is placed out of a horizontal position, the reason of which is, that the strips of iron may be cut not directly across at right angles to their length, but obliquely, in order to form the nails or sprigs broader at one end than the other, that is, wedge-shaped. The bed is therefore capable of being adjusted to produce any required angle of the sides of the nail, by bearing upon a joint at the end next the main standard *a*, and at the reverse end being supported in the back standard *m*, by a pin fixed according to a graduated segment.

The general construction of the engine being now explained, its operations will be clearly understood. If an adequate rotatory power be applied to the shaft *n*, (see fig. 4,) its bevel wheel *o*, will turn the bevel wheel *p*; and the rod *q*, being connected to the lever *c*, and to a crank on the axle of this wheel, as the wheel goes round, it will cause the lever *c*, to vibrate, and produce the action of shears between the two edges *d*, and *b*, by which the ends of the strips of plate iron will be cut off.

The rod *r*, attached to an excentric, also upon the axle of the wheel *p*, leads down to an arm *s*, extending laterally from the longitudinal shaft *s*, *s*, (see fig. 5,) by which means, as the wheel *p*, goes round, the shaft *s*, *s*, is made to vibrate. This shaft carries a bar or leaf *t*, and as the shaft vibrates, the leaf *t*, moves to and fro, and acts as a wiper or tappet upon two forked levers *u*, and *v*, suspended upon fulcruum pins above.

The stroke of the leaf *t*, against the forked lever *u*, produced by its vibrations as above described, causes a pall extending from the upper end of the lever *u*, to strike a tooth of the ratchet wheel *w*, and to drive the wheel round part of a revolution, and also the endless screw *l*, fixed upon the axle of the same ratchet; which movement of the endless screw, by its acting in the teeth of the rack *k*, slides the rack forward a little distance, and with it the carriage *h*, *h*, and the strips of iron *e*, *e*, *e*, ready to be cut.

The strips of iron *e*, *e*, *e*, being thus pushed forward between the cutters, the stroke of the lever *c*, immediately follows, and cuts off the ends, which fall to the ground in small wedge-formed pieces. These are the nails or sprigs intended to be made.

On the return of the lever *c*, the rod *r*, again causes the shaft *s*, to vibrate, and the leaf *t*, to act against the forked levers *u*, and *v*. First the lever *v*, being moved its upper end strikes against a tooth of the ratchet wheel *x*, and by driving it round, drives also the toothed wheel *y*, fixed upon the same axle, which taking into the lower pinion of the series *i*, causes them all to turn round half a revolution, and to turn the strips of iron *e*, also, by which means, the oblique edge left by the last cut, is shifted to the reverse way, and the next nail produced is wedge-formed as before. The further movement of the leaf *t*, causes the forked lever *u*, to strike the ratchet *w*, as before, and by turning the endless screw *l*, to advance the rack and carriage, and the strips of iron *e*, *e*, *e*, in the manner already explained.

Thus every rotation of the wheel *p*, gives the cutting motion to the shears, after which, each vibration of the shaft *s*, and its leaf *t*, moves the carriage with the strips forward, a distance equal to the breadth of one nail or sprig, and also causes the strips to turn over for the purpose of shifting their positions after every cut; and when by a succession of cuts the strips of iron are reduced nearly down to their holders, a projecting piece at the front part of the sliding rack, pushes against the end of the lever *z*, which slides the wheel *p*, back out of gear, and stops the further action of the engine.

[*Inrolled May*, 1826.]

To JOHANN GEORG DEYERLEIN, *of Mercer Street, in the Parish of St. Martins in the Fields, in the County of Middlesex, Smith and Tool Maker, in consequence of a communication made to him by a learned Foreigner residing abroad, for certain improvements on Weighing Machines, which Machines he denominates German Weigh Bridges.*

[Sealed 10th November, 1825.]

THE principle upon which this improved weighing machine is constructed, is a certain arrangement of three levers, the powers of which shall be proportioned mathematically to each other, and so combined, that any body or weight being placed upon a platform which rises and falls perpendicularly between the two extreme levers, one tenth the weight suspended at the end of the first lever shall exactly counterpoise the body to be weighed.

Before explaining the construction of this weighing machine, the patentee has thought it necessary to set out a diagram illustrative of its principle, which is exhibited in Plate XIII, fig. 4. Let *a*, *b*, *c*, *d*, represent a lever swinging upon a fulcruum at *b*, and *e*, *f*, *g*, another lever bearing upon a fulcruum at *g*. Let *h*, *i*, be supposed to be a third lever suspended at one extremity *h*, by a rod from the first mentioned lever at *c*, and bearing at the other extremity *i*, upon a fulcruum on the second lever at *f*; and the extremity *e*, of the second lever held up by a rod suspended from the end *d*, of the first lever.

Now if any weight or body as a sack of flour, be placed upon the lever or platform *h*, *i*, it will be supported between the points *c*, of the first lever, and *f*, of the second lever, and be balanced by a body of one tenth its weight, suspended from the point *a*, the platform or lever rising, and falling in parallel positions.

The general appearance of the weighing machines is shewn by a side view at fig. 5, in which *h*, *i*, is the platform intended to receive the body to be weighed, and *k*, the scale, with the balance weight, suspended at the end *a*, of the beam, which swings upon its fulcruum at *b*, supported in the side standard or frame *l*. The connections and bearings of the several parts being exactly upon the principles, and in the proportions shewn in the diagram, any weight on the platform, will be balanced by a weight of one tenth in the scale, that is, ten pounds in the scale will be equal to one hundred on the platform.

Any variations in the dimensions of the machine may be made without effecting the principle, provided the proportions of the levers, and the distances of their fulcruums and the points of suspension be all proportionate to the scale given.

This arrangement of mechanism is applicable to weighing machines of any magnitude, whether for the ordinary purposes of weighing retail articles in the shops, or for a weigh-bridge for carriages or cattle.

The patentee has not stated any particular parts which he intends to claim as new in this piece of mechanism, but the peculiar arrangements and proportions of the whole, constitutes the subject of his patent right.

[*Inrolled May*, 1826.]

To John Parker, *of Knightsbridge, in the County of Middlesex, Iron and Wire Fence Manufacturer, for his Invention of certain improvements on, or additions to, Park or other Gates.*

[Sealed 23rd May, 1826.]

The subject of this patent is a singular and ingenious contrivance, which some persons have thought proper to denominate a *Sympathetic Park Gate*, because on the approach of a carriage, it opens apparently by its own volition, and closes again without any apparent cause as soon as the carriage has passed through.

The manner in which this extraordinary effect is intended to be produced, is by small plates let into the ground at short distances from the gate, and when the carriage wheel rolls over them, they are made to descend like a weighing machine, and to act upon certain levers concealed in a trunk under the road, by means of which a toothed-wheel is made to revolve, and to turn a toothed-pinion affixed to the swinging post or axle of the gate, and hence to throw it open, or close it.

Plate XII, fig. 6, may be supposed to represent a portion of the road near the gate, with a section of the trunk underneath, and the mechanism employed for effecting the object. Supposing a two wheeled carriage, as a gig, to be driven towards the gate, the wheel on passing over the plate *a*, would cause the pin extending from the under side of the plate to press upon the arm *b*, of the weighted lever *c*, which would consequently raise the arm *d*. A rod *e*, is attached at one extremity by a swivel joint, to the end of the arm *d*, and at the other extremity by a crank to the wheel *f*. The depression of the arm *b*, will cause the arm *d*, to rise, and draw the rod *e*, which consequently turns the toothed wheel *f*, upon its axis. This toothed wheel takes into a pinion fixed on the lower part of the standard or axle *g*, of the gate, and as the toothed wheel turns the pinion is turned also, which throws the gate open.

The weight of the carriage in passing over the plate *a*, having thus caused the gate to be thrown open, as shown in the figure; it is held in that situation by a catch in a post, similar to *h*, against which the back of the gate strikes when open.

The carriage having passed, the gate is made to close itself, by the wheel rolling over a plate, similar to *z*, but at the opposite extremity of the trunk, and not shewn in the figure. This plate hanging upon a hinge, is depressed by the weight of the carriage, and its lever *y*, acting exactly in the same way as the lever *c*, above described, causes the rod *x*, to be drawn, which pulls a crank *w*, similar to that shewn in the post *h*, and an upright rod connected to the crank by these means raises the catch *v*, and sets the gate at liberty.

The gate being released, the weight at the lower part of the lever *c*, by its gravity now descends, and the arm *a*, pushes the rod *e*, back again into its place of rest, and also turns back the toothed wheel *f*, which causes the pinion to turn and to swing the gate into its former position crossing the road.

A catch is placed upon the gate post, for the purpose of locking or holding it fast when closed, the construction of which is similar to the lever catches in common, and rods are connected to the catch, and to levers, exactly in the same way as shewn at *w*, *x*, *y*, *z*, but placed on the other side of the road: by which means the wheel of a carriage in approaching the gate and passing over a lever plate in the track, releases the catch, before the apparatus comes into play which forces the gate open in the manner above described.

It is scarcely necessary to add that the levers, rods, and other appendages exhibited in the figure, are to be exactly alike on each side of the gate, and to be placed at similar distances from the gate; when, a carriage approaching the gate in either direction will first act upon the catch lever of the resting post, and unlock the gate, then by passing over the plate *a*, cause the gate to be thrown open in the way described, and afterwards acting upon the catch-lever of the back post, release the gate, and allow the weighted levers to close it again; when the catch of the meeting post immediately locks the gate fast.

[*Inrolled November* 1826.]

To JOHN BELLINGHAM, *of Norfolk-street, Strand, in the County of Middlesex, Civil Engineer, for his newly invented improvement, or improvements, in the construction of Cooking Apparatus.*

[Sealed 18th April, 1826.]

THE improvements proposed by the patentee, the particular novel features of which we are unable to define, have for their object, the construction of a cooking apparatus, consisting of boilers, ovens, hot-closets, &c. The fire place is situated about the middle of the erection, and from it emanate flues in different directions, which carry the smoke and heated vapour arising from the immediate combustion of the fuel, and bring it in contact with the external surfaces of the several vessels and chambers, for the purpose of heating them.

We cannot discover the slightest feature of novelty in the construction of this apparatus, unless it may be in the particular proportions, which one vessel bears to another, or in the particular positions and forms of the several vessels, none of which present any appearance of peculiar utility. We should therefore have been completely in the dark as to the invention of the patentee, had he not stated that his claims consist in forming a certain projecting part of the boiler square, and causing it to extend partly over the fire; and in making the hot plate upon which stew pans and other articles are to be placed, in several pieces, joined together by rebate edges, by which contrivance the expansions and contractions of the metal, caused by heat and cold, will not be likely to crack the metal, as is frequently the case, when the hot plate is made in one piece.

[*Inrolled June,* 1826.]

Original Communications.

The improved process of concentrating and crystallizing sugar in vacum by steam, as conducted upon the plan of Mr. Howard, having become a subject of very considerable interest and inquiry, we have thought it desirable to present our readers with a description of the apparatus and mode of proceeding, as practised by those houses in London, whom the inventor has licensed to work under his patent.

Mr. Howard first introduced his plan under a patent granted 31st October, 1812, "for a process for preparing and refining sugar;" and subsequently improved that process under another patent, dated 20th November, 1813. We shall therefore first state what were the objects proposed in the specifications of these patents, and afterwards describe the apparatus at present in use.

With respect to the first specification, the patentee commences by observing, "From the known fact that water dissolves the most uncrystallizable sugar, in preference to that which is most crystallizable: and also upon a discovery I have made, that no solution of sugar in water can, (unless already highly concentrated) without material injury to its colour, and crystallizing power, or to both, be exposed to its boiling temperature during the period required to evaporate such solution to the crystallizing point, I have estabished and adopted the following operations:

In the first instance I do submit raw or Muscovado sugar to a primary operation, by well mixing as expeditiously as possible, the said sugar with such a quantity of water, as will at the common temperature of the atmosphere bring it to a magma of the consistency of well worked mortar: and I do leave the same at rest for the space of an hour or more, and then heat it to a moderate temperature, say from 190 to 200 Fahr., which may be most conveniently affected in a vessel surrounded by boiling water, or steam, under the common pressure of the atmosphere, which apparatus is so well known under the name of the water bath, that it requires no particular description.

Having brought the said mixture of sugar and water to a uniform temperature, I then regulate its consistency if necessary, by the addition of more sugar, or a thinner magma, as may be requisite, in order to put the mass into such a state of semi-fluidity that it shall close behind the stirrer. I then fill the moulds with the mixture, immediately from the bath, by any convenient means, and after suffering it to become cold in the moulds, as is usual when sugar has been boiled in the common method, I then take the stoppers out of the moulds, and suffer the molasses to drain therefrom, and as soon as the drainage has taken place, or somewhat sooner, I pare down the larger or upper surface of the lump, or loaf, or mass of sugar remaining in the mould, with any convenient instrument, until I find the sugar presents a uniform appearance."

The sugar thus pared off from the lumps, is to be again mixed with cold water, and brought to a semi-fluid state as before, and in that state, is to be placed in the moulds upon the masses from whence it has been pared, and when this magma has become moderately dry, a cold saturated solution of fine sugar in cold water is poured upon it, taking care to place an intervening guard between. Or instead of the solution of fine sugar, the magma may be taken off down to the surface of the lump or loaf, as left after the first paring, and being mixed with water, to a thinner consistency than before, it may be again replaced upon the lump in the mould, and allowed to filter through. This may be repeated as often as may be found necessary to refine the sugar, and when the sugar is extremely close grained and hard, an unsaturated solution of sugar or even water may be employed, but this must be done with great care. On the contrary, when the sugar is open grained, the finer sugar made into the magma, should be ground, because the moisture would thereby be prevented from descending too fast into the loaf.

It is very desirable, in carrying on this clarifying process that the temperature of the apartment in which it is performed, should be lowered to about 60° previously to the loaves being treated with the magma as above described, and again to raise the temperature of the apartment to 80 or 90 deg. after the surface of the loaf becomes dry for the last time.

When the surface of the lump of sugar becomes so hard or iced over, as to prevent the free access of the air and moisture above, or its discharge below, it will be found necessary to pierce small holes in the upper and lower parts of the lump, in order to enable the moisture to filter freely through the mass.

The first part of the process being thus terminated, the loaves are withdrawn from the moulds in the usual manner, and the good sugar separated from that which contains molasses, setting the latter apart to be mixed up with raw sugar at a future operation, and treated as above described.

The good sugar is now to be further refined by pouring upon it from any convenient vessel, six pounds of boiling water, to every five ponnds of sugar, and after having effected a perfect solution of the sugar by stirring, the whole is allowed to settle, that the dirt and gross insoluble particles may subside. The solution is then to be drawn off by a cock into a cistern, and the colouring matter further discharged by the addition of finings.

These finings are prepared by slaking well burnt lime with boiling water, and bringing it into the consistency of cream, as uniform as possible. To this cream of lime about an equal quantity of water is to be added, and the mixture boiled for some minutes, which will cause the lime to assume the appearance of fine curd. The extraneous matters and lumps which are always contained in lime, are now to be separated by washing over, or what is termed by chemists the process of elutriation, the liquor being made to pass through fine seives.

In the next place a solution of alum is to be prepared by dissolving any quantity in about sixteen times its weight of boiling water; about two pounds and a half of alum, will be necessary for every hundred weight of sugar to be refined. To this solution add about seventy or eighty grains of whitening for every pound of alum, and after stirring the mixture until all effervescence ceases, it must be allowed to settle, and may then be drawn off for use.

The prepared lime curds, shook up with their water are now to be introduced into, and well mixed with the last described solution of alum, the quantity of curd to be used, being only just so much as shall when mixed enable the liquor to act slightly upon turmeric paper, but not to change its colour permanently.

By these means the finings are prepared, and the mixture being allowed to settle, and deposit its earthy matters at the bottom of the vessel, the supernatant liquor is to be drawn off, and the deposit placed upon a blanket to dry, when it may be pulverised, and is then fit for clarifying the solution of good sugar prepared as above.

The fining powder is now to be moistened by some of the solution, and well stirred until it becomes as thick as cream, and then the whole is to be turned into the vessel, containing the solution of sugar to be operated upon, in the proportional quantities above stated, and agitated until the finings are equally diffused through the mass.

The sugar is now allowed to rest for about six hours, more or less, and after that time the bright liquor is to be drawn off, or decanted from the finings, and evaporation commenced under a temperature of 200 degrees or thereabouts, which is best effected by the heat of steam, at the common pressure of the atmosphere, or of hot water.

When the saccharine solution shall have acquired a specific gravity of about 1·37 it may be transferred to any convenient vessels, and agitated until it has assumed the proper granular consistence to fill the moulds, which may then be done, and when cold the stoppers must be removed from the bottoms of the moulds, that the syrup may run off as usual.

The lumps of sugar thus made if found to be sufficiently white when dry, are then ready for the market; but if not properly clarified, they are to be broken up and converted again into a liquid form, and operated upon as described before. Or if the sugar loaf is not sufficiently dense or close in its grain, it may be pulverised and remoulded in the manner known and commonly practised.

With respect to the liquors left in the two cisterns, the one containing the gross dirt and insoluble impurities, and the other the finings, the solution of sugar necessarily contained in both is to be worked up in the next operation. To the first of these liquors is to be added about its bulk of boiling water, and then filtered through a fine cloth; the other liquor containing the finings is then to be mixed with it, and by means of washing all the sweet contained in it may be abstracted, which may be used up in preparing the magma for future operations. The syrup drained from the moulds may be evaporated, or in its moist state may be mixed with Muscovado sugar.

Thus far is the process proposed by Mr. Howard, for preparing and refining sugar, according to the specification of his first patent, dated October, 1812, in which the employment of steam or hot water as a heating medium, forms an important feature, instead of bringing fire in direct contact with the pans or boilers, as in the ordinary mode of sugar boiling. The subsequent improvements in the process, and the mode of performing the operation of concentration or crystallizing the sugar in closed vessels exhausted of air, constitutes the most important feature of the invention claimed under the second patent, dated November, 1813.

The specification commences by saying, "Instead of proceeding to refine the wet or good sugar obtained by the first part of my process as described in the specification of my former patent, by solution in water, and the subsequent application of my finings as therein directed to be performed; I proceed to refine the sugar by the action of steam and finings, which I find can be conveniently done by placing the sugar with the due proportion of finings intermixed therewith in any suitable vessel, having within a perforated stage to support the sugar, and a ramification of steam pipes underneath the stage from which steam is allowed to issue through small holes, whereby the sugar is heated and dissolved by the action of steam, as employed in many well known chemical and manufacturing processes."

When the whole of the sugar becomes fully dissolved and has acquired the heat of about 200 degrees, the refinement is be to conducted either by filtration or by precipitation. When by filtration the solution is allowed to pass (by the pressure of a super-incumbent column of the fluid, or of some other well known force) through a filter made of an extensive surface of Russia duck in which operation it is desirable that the temperature should be retained as much as possible. But if the clarification is conducted by precipitation, it will be necessary first to dilute the syrup until its specific gravity is only about one-fifth heavier than water. The patentee adds, "but I do hereby declare that the invention for which this patent is obtained by me, in so far as regards this first improvement upon my former invention, does consist in the application of steam to the sugar, at the same time that it is exposed to the action of the finings, and in causing the impurities to separate by filtration or by repose."

It is next stated that the finings made by a solution of lime and alum in water, should have a smaller quantity of lime curds in it, than was before proposed when employed with filtration, and that it is found desirable to use about three ounces of whitening to every two and a half pounds of alum.

The third feature of improvement proposed is described nearly in the following words: "Instead of evaporating any saccharine solutions in the manner described in the specification of my former patent, I now evaporate the same in a close vessel, heated by any means; but I prefer by means of steam; and I make and keep up a vacuum more or less perfect within the said vessel, by the agency of an air-pump. This vacuum should be so perfect at the commencement of the process as to support only one inch of mercury; and it is highly advantageous that the pump should be kept in constant work, in order to effect the most rapid evaporation.

It may here be desirable to exhibit the form and arrangement of the apparatus now in use at some of the most extensive sugar-houses in London for crystallizing sugar, as the specification of this patent is not accompanied by any drawing explanatory of the shape and disposition of the pans or boilers, but simply gives the idea of the principles upon which the apparatus is intended to act.

Plate XIII, fig. 6, represents the general disposition of the pans, and the other parts of the apparatus connected thereto, consisting of two circular vessels with dome tops, the one shewn by an external view, the other in section. These pans are made of sheet copper of suitable thickness, and of any dimensions according to the quantity of sugar required to be concentrated in any given time. The diameter of the pans may be five feet, eighteen inches deep, from the level of the flange to the center; and the domes or covers, two feet high: the whole being put together by bolts and rivets in the best way, with packing between the flanges to keep the joints, steam, and air tight.

a, is the pan in which the clarified sugar or syrup is to be placed, for the purpose of being boiled; *b*, *b*, are pipes through which the sugar is passed from a vessel above into the pans.

These pipes are furnished with stop cocks c, to prevent the delivery of more syrup than is required to be acted upon at one boiling; *d*, *d*, is an outer pan, or jacket to the former, which is attached to it by the flanges *e*, *e*, packed and closely bolted all round, making a steam tight joint; *f*, is the pipe leading from a boiler through which pipe steam of about three or four pounds on the inch pressure is introduced into the space between the pans *a*, and their jackets *d*.

As this space extends over the whole under surface of the pan, the heat of the steam will act against it, and cause the syrup within the pan to boil rapidly. It may also be observed that there must be an outlet for the steam at the opposite side of the jacket, that it may be enabled to circulate, and pass off, otherwise its power of heating will not be effective; *g*, is a cock at the bottom of the outer pan or jacket, for the purpose of drawing off the water that may occasionally accumulate by condensation.

The pans are supported by piers or walls *h*, *h*, of brick work or masonary, with wooden frames; *i*, *i*, are the covers of the pans made of a dome form, principally to give strength, and resist the pressure of the atmosphere, on the outside; *k*, is a pipe leading to an air pump, placed in any situation as nearly contiguous to the pans as may be found convenient, which pipe opens to the interior of the vessels for the purpose of enabling them to be exhausted of air.

The air pumps (are not shewn in the figure) being in a contiguous building, they are of the ordinary construction, and may be worked by a steam engine, or any other convenient power. The pumps should be kept constantly in action for the purpose of preserving a constant vacuum within the boiler, and drawing out the vapour as it arises from the surface of the boiling sugar, the maintainance of the vacuum being extremely essential in promoting the crystallizing of the sugar.

The state of concentration of the syrup may be ascertained from time to time by the introduction of an apparatus called a proof rod, which it to be passed into the tube *l*, within the boiler. The construction of the apparatus is simply this. The tube *l*, is hollow, and is inserted within the boiler by a flange made fast to the dome or cover of the pan, and rendered perfectly air tight, the upper part of the tube is open to the atmosphere, but the lower part is constructed with a socket and plug, like the key of an ordinary liquor cock, with two apertures in the socket and plug, through which liquor may flow when open.

The proof rod is a straight rod with a handle, having a key at the lower end, which on being introduced into the tube, and turned round, unlocks the socket and plug at bottom of the tube, and allows the liquid sugar to flow through the apertures of the socket and plug into a recess at the bottom of the key. The proof rod being thus employed, will, every time it is drawn out of the tube, bring with it a sample of the boiling sugar, and thus the tenacity will shew the state of concentration, which may be frequently observed without opening the boiler, the upper end of the proof rod being made to fit the tube exactly, so that no air shall be admitted to the interior of the vessel.

The patentee observes in his specification, that the state of concentration may be known by means of a thermometer immersed in the boiling solution, (as shewn at *j*,) by noticing the temperature at which, the solution while fluid and without grain can be kept boiling under different pressures, the said pressures being shewn by any gauge or fit instrument denoting pressure, and communicating with the vacuum. For the solution will be in the state I prefer, and fit to be drawn off and set for the ten pound Hambro' loaves, when the half pressure upon the mercury in a common mercurial syphon gauge measured from the line is equi-distant from each of the mercu_ curial surfaces, (or the line of perfect curl,) and the temperature of boiling by Fahrenheit's scale, set opposite.

Having brought the liquid sugar by means of evaporation in the exhausted vessels to the degree of density required, it is thus to be withdrawn from the boilers through the man-holes *m*, by removing the caps *n*, which are made air-tight at the joints by their rims falling into grooves filled with water.

The sugar is now to be deposited in a granulating vessel of the kind commonly used, which may be heated by steam, and its temperature regulated; between the degree of 150 and 160, the sugar is most disposed to arrange its particles in crystalline grains. But as this granulation is most advantageously effected by alternations of temperature, it is recommended to heat the saccharine liquor to 180 degrees, and then cool it down to 150, which may be done by various means, and these changes of temperature may be repeated until the sugar has formed itself into the best grains of which it seems capable.

The moulds may now be filled with the sugar, employing either those in common use, or moulds with long trumpet formed ends, the advantage of which last mentioned moulds is that the colouring matter may settle in the elongated end of the loaf, instead of remaining in the point, and may then be cut off by means of a revolving apparatus, like the cheek of a turning lath, and the sugar loaf being thus finished with a regular shaped point, according to the ordinary form is fit for sale in the market.

Novel Inventions.

Steam Coach.

From the numerous enquiries which we have lately received respecting stage coaches said to be propelled by steam, we are under the necessity of again recurring to the subject of steam carriages, though it must be confessed, with considerable reluctance. How the public press can have suffered itself to have been so grossly imposed upon with respect to steam coaches, or the people to be so extensively gulled, we are at a loss to understand. Is the steam coach shortly coming to Manchester? says one; we hear it starts next week for York, says another; how does it answer upon the Southampton road? enquires a third; and a multitude of such questions are pressed upon us daily. To which we have been compelled to reply, rather petulantly, (stopping our ears against the incessent din of steam coach! steam coach! steam coach!) THERE IS NO STEAM COACH IN EXISTENCE!!!

Our readers may feel surprised at this assertion after all that has been said in the daily newspapers, and the flaming pictures of stage coaches driven by steam, which have embellished several of the weekly pamphlets, and decorated the print shops all over the kingdom. This assertion is however, not more strange than true. Had there been any stage coach running by the impelling power of steam, or even likely to run upon that principle, we should have been the first to announce it.

In our 13th Vol. page 163, we mentioned Mr. Gurney's loco-motive engine, and stated that it had several times ran along the roads in the neighbourhood of the manufactory, near Regent's Park, by way of experiment. The same loco-motive engine, with some boards, tacked together to resemble the body of a coach, is still occasionally sent out to astonish the gazers, but every day with some fresh alteration in its mechanism.

We have repeatedly visited Mr. Gurney's manufactory in the hope of seeing this *wonder of the world* exhibit some of the feats, which it is said to have done, like an *ignis fatus*, and then disappeared: but unfortunately upon every occasion the machine has been out of order, and the carriage unable to run for some days to come; of which we were to have due notice.

Without knowing whom to blame for the deceptions which have been imposed upon the public, in respect to this invention, we cannot help saying that so absurd a design as that published in some of the periodicals above alluded to, purporting to be a representation of Gurney's New Steam Carriage, is calculated to throw very great discredit upon the patentee's inventive talent.

As it is our duty to report every improvement in mechanical arts, we have *en passant* described a multitude of projects connected with loco-motion, and such is the state of the arts at this time, that we have no doubt a steam carriage might be made without difficulty; indeed, we will undertake to say there are twenty engineers in London who would immediately engage to construct an effiective steam carriage, if any responsible person would tender an order for one. The only doubt upon the subject is, not whether a steam coach could be made to *go*, but whether it could be made to go with as much expedition, and economy, as those which are drawn by horses.

Without entering at present into this argument, we merely request our readers to remember that all the plans which have been proposed for the construction of steam carriages for some years past, consist merely in fanciful and problematical variations of old and established principles, not in any thing essentionally new. Therefore we repeat, if the construction of a steam coach, (subject to the objection which must inevitably attend it) is desired, the means are at hand, and may be immediately brought into operation, but no steam coach is at present in existence capable of being applied to public service, nor is there any one at present in a state of progress that promises to run as a public stage coach.

Polytechnic and Scientific Intelligence.

ASTRONOMICAL SOCIETY OF LONDON.

November 9, 1827.

Mr. Baily presented a paper "On the right ascension of γ *Cassiopeæ*." As this paper is a short one, and of an interesting nature, we shall give it nearly in the words of the author :

"On comparing the catalogue of Stars, recently published by this Society, with the catalogue of 100 principal fixed stars given by Mr. Pond, at the end of the Nautical Almanac for 1829, I was struck (he says) with the considerable difference which appears in the AR of γ *Cassiopeæ :* Mr. Pond making the AR of that star upwards of one second (in time) more than the catalogue printed by this Society. At first I imagined that some error might have crept into the calculations of the Society's catalogue, notwithstanding they were made by two computers, independent of each other, and afterwards revised by our indefatigable secretary, Mr. Stratford, I therefore, for my own satisfaction went through the whole computations myself, and was pleased to find that there was not the slightest difference in the results. I next reduced the whole of the observations of that star made by Mr. Pond at the Royal Observatory at Greenwich, and found them to agree very nearly with the result, deduced by Mr. Taylor, who makes the mean of 10 observations to be= 0^h 46^m 13s, 23 reduced to Jan^y: 1, 1825 ; whereas the Society's catalogue gives only 0^h 46^m 12^s, 13 on January 1, 1825 ; being a difference, as already stated, of 1^s,1. Bradley has 5 observations of this star, and Piazzi has 46. It is scarcely possible that Bradley should be in error one second of time ; and still less probable that the mean of 46 observations by Piazzi should be erroneous to such an amount. The result of Bradley's observations (after allowing for the effect of precession) differs 8", 5 in space from those made by Piazzi, which quantity, divided by 45, (or the interval of years between the two observers) will make the annual proper motion of the star, if it really have any, about 0",19 in space. But, this is not confirmed by the recent observations of Mr. Pond, and we must look elsewhere for a solution of the difficulty. That the position of a star of the third magnitude should be so undecided at the present day that its AR cannot be satisfactorily depended on, to a second of time, does not speak much in favour of modern astronomy, and shows us that a great deal still remains to be done towards establishing the *fundamental* parts of the science.***Amongst other suggestions I have imagined that it might arise from a typographical error; and in fact if we suppose a misprint of 10" in the AR of γ *Cassiopeæ* in Piazzi's catalogue, that is, if we read AR=11° 11' 17",6 instead of 11° 11' 7",6, the whole difficulty will vanish, and the results of the observations of Bradley, Piazzi, and Pond, will agree to the greatest exactness. But we are scarcely warranted in making such an alteration without a reference to the original observations. Some suspicion however is excited that the printing is not strictly correct, from the circumstance that Piazzi considers the annual proper motion in AR, as deduced from Bradley's observations, to be = 0; which would agree with the amended reading as here suggested, but which does not accord at all with the present reading in the catalogue, since the annual proper motion is, as I have already observed, in such case= — 0',19.

"Before I close these remarks, I would observe that there are also differences in the AR of three other principal stars (besides that of β *Scorpii*, which is acknowledged to be an error in the Greenwich catalogue, to which I am desirous of calling the attention of the Society, and for which I can, by no means, account. These are ξ *Ursæ Majoris* and β *Cephei* (both stars of the third magnitude) and c *Draconis*, a star of the fifth magnitude. The two last differ, as, in the case of γ *Cassiopeæ*, about a second in time from the catalogue of Mr. Pond, but ξ *Ursæ Majoris* differs as much as 1",4. The case of this last star is the more remarkable, since the observations of Bradley and Piazzi correspond with wonderful exactness, there being a difference of only one second in *space*, between them, after a lapse of 45 years; whereas from the time of Piazzi to the year 1825, a period of only 25 years, there appears from Mr. Bond's observations, to be a difference of upwards of 20".

The whole of the computations relative to the positions of these stars, I have frequently repeated, and can assure the Society that there is no error in the results as printed in their catalogue. Time only, and farther observations, can clear up these apparent difficulties.

A paper was read "on double object-glasses; by M. Littrow."

The first part of this communication is devoted to the derivation of the equations expressing the conditions proposed by Mr. Herschel for the destruction of the aberration of sphericity in a thin double object-glass, by the ordinary processes in use among the German geometricians for such investigations. The author states himself to have entered on this investigation with a view to disseminate a knowledge of the theory alluded to in his own country; but being induced thereby to resume some former investigations of his own, he takes the opportunity to communicate to the Society his own principal results.

Taking for granted the well known expression of Euler for the aberration of a lens of two surfaces, and developing it in descending powers of the distance of the radiant point from the lens, he obtains expressions, from which by proper management, and substitution of similar quantities for a second lens, he derives the two final equations (A) and (z) demonstrated by Mr. Herschel. He then proceeds to the main object of his paper. This may be briefly stated, to be the embodying of the relations expressive of the refraction of a ray through any four spherical surfaces however situated, (provided they have a common axis) in trigonometrical equations, in which no quantity is regarded as small, and of course nothing neglected. These equations are in themselves sufficiently simple when undeveloped, and in that state may very readily be applied to determine whether any proposed construction of an object-glass really does satisfy the essential geometrical conditions of a perfect telescope, by producing a rigorous union of different coloured rays, and rays incident on different parts of the object-glass. Accordingly the author instances the application to a construction recently proposed by a German optician, as of peculiar excellence. In this construction the indices of refraction of the crown and flint lenses being respectively 1·53 and 1·60, and their dispersive ratio 0·25, the thickness of the crown lens 0·01, that of the flint 0, and the lenses being supposed in contact, the radii of the surfaces are

For the crown...... 1st surface (convex) 0·69281
2nd surface (convex) 2·255319
For the flint.......... 1st surface (concave) 1·543030
2nd surface (concave) 5·768005

Substituting these data in his equations he finds that they satisfy sufficiently well the conditions of achromaticity, but that they are very far from being entitled to the same ecomium when the spherical aberration is considered.

But when the question is inverted, and the problem is, not to try whether a proposed construction be good or not, but *a priori*, to determine what is best, the equations in question, though simple enough in their trigonometrical form, become complicated by the algebraic developments their direct analytical resolution necessitates. Now the essence of M. Littrow's proposed method is to do away with all this development, so far as it tends to produce complication, and after preparing the equations in the most convenient manner the case will allow, to substitute for their direct algebraical, an *indirect numerical*, solution, by the well known and ready method of trial and error, a method perfectly correct in theory as well as easy in practice.

M. Littrow exemplifies this theory, by applying it to that particular case, when the indeterminate problem is limited by the condition of Klugel, viz. that the refractions at the first two surfaces shall be as small as possible, in which case the first or crown lens is in fact wholly given, and it only remains to determine the radii of the flint. He takes into consideration the thickness of the former, but not the latter lens, and neglects also their distance *inter se*. As a numerical instance, he supposes the indices of refraction 1·53 and 1·58, the dispersive ratio $\frac{2}{3}$, and the thickness of the crown lens one hundredth part of its focal length, when by applying the process described, he finds the following radii

Crown lens	1st surface (convex)	0·186823
	2nd surface (convex)	0·608170
Flint lens	1st surface (concave)	0·407996
	2nd surface (concave)	0·445808

Focal length of the compound lens = 1; aperture 0·06495

M. Littrow, however, is by no means of opinion that the condition of minimum refraction here assumed is the best, or in any way essential to a good object-glass; only it facilitates calculation. He regards it as more advisable to aim at increase of aperture, and for this purpose to assume the first or crown lens equiconvex, which he affirms to be the condition requisite for the attainment of that end. He therefore explains his method of proceeding in this case, and applies it to the same numerical data with those last mentioned, which give for the final results:

Crown lens (equiconvex)	Radius of each surface	1·06
Flint lens (biconcave)	Radius of 1st surface	1·04394
	of 2nd surface	3·296512

Focal length 3·702231

Aperture.... 0·09973 × focal length

or nearly 1-10 of the focal length, being a much larger proportional aperture than it has been usual hitherto to give to achromatic telescopes.

The author concludes by stating the reason of his entering into these investigations: viz. an application made to him by an artist of Vienna.

A paper was also read from M. Slawinsky, containing the following observations made at Wilna. (Longitude $1^h\ 41^m\ 12^s$ East of Greenwich).

1. *Eclipses of Jupiter's Satellites.*

				Sidereal time.	
1825.	Jan. 17	Im.	1	$4^h\ 0^m 23^s,7$	good observation.
	Mar. 22	Em.	2	8 51 51,9	very good.
	Apr. 23	Em.	1	10 44 23	good enough.
	May 5	Em.	1	12 29 38,7	very good.
1826,	May 8	Em.	1	15 31 56,1	middling.
	June 2	Em.	2	16 46 0,1	middling.
1827.	Mar. 18	Im.	1	16 1 14,9	a little doubtful.
	Apr. 18	Im.	1	16 46 15,2	passable.

2. *Occultations*.

			Sidereal time.	
1825. Apr. 1	*e* Leonis....	Im.	$10^h\ 8^m\ 55^s,2$	very precise.
		Em.	$11\ \ 1^5\ \ 14,2$	a little doubtful
23	Star (mag. 8·9)	Im.	11 22 29	exact.
1826. Feb 15	208 Tauri	Im.	6 55 58,8	good.
16	Saturn			
	1st ansa	Im.	3 11 58,8	good.
	1st limb		3 12 8,8	
	2nd ansa		3 14 48,3	
1827. Mar. 18	λ Libræ......	Im.	17 4 55,9	good enough.

List of Patents

GRANTED BY THE FRENCH GOVERNMENT, FROM 1ST JULY, TO 30TH SEPTEMBER, 1827.

To Paret, Pierre Joseph, mechanic, of Montpellier, for new weighing machines—15 years.

— Landrieu, Jean Baptiste Joseph, son and Co. of Anzin, for improvements in making bricks—5 years.

— Roland de Bussy, Jean François, of Paris, for a kiln for carbonizing peat or turf—10 years.

— Moussier, Rene Louis, toyman, Paris for a sulphuretted diamond cut file, for taking away corns and bunions—5 years.

— Carpentier, Parfait-Modeste, Paris, for a mechanical bed and arm-chair upon springs, for sick people—15 years.

— Berry, Henry, merchant, London, for an elastic cork, made of *caoutchouc*, or Indian gum, aud for certain improvements in the combination of, and application of, an apparatus for procuring instantaneous light—10 years.

— Ferry, Jean Nicolas, locksmith, of Epinal, Vosges, for improvments in the portative scales, by Quinteriz—5 years.

— Ensgraber, Leopold, Cooper and Brewer, of Channy, for a cooling ventilator—5 years.

— Jamin, Louis François, and Cordier, François Romi, button makers, Paris, for the invention and application of dyed leather of all colours for making buttons—5 years.

— Gamvin, Archange, of Paris, for a method of obtaining steam without fear of explosion, with great reduction in space, weight, and expense—15 years.

— Lagrange, Louis Benjamin, merchant, Paris, for a method of clarifying liquor—10 years.

— Pradel, Pierre, clock-maker, of Carcassonne, Aude, for a machine for shearing cloths—10 years.

— Jolly, Victor, and Ewbank, Bruno, chemists, at la Glaciere, for a process for carbonizing turf—5 years.

To Mullens, Paris, for an elastic mattress, and other furniture—15 years.

— Gurzot, Louis, architect, Paris, for a crane for removing the earth out of canals, &c. and for supplying it where wanted, for fortifications—15 years.

— Lesgent, junior, pewter pot maker, Paris, for the invention of a metal mixed with steel, for making spoons, &c. and possessing all the strength, elasticity, and polish of silver—10 years.

— Rey, Etienne, drawing master, of Lyons, and Aguettant, Sebastian, architect, of la Guillotiere, Rhone, for the application of the force of water, wind, and steam, in erecting bridges and other works—10 years.

— Munch, Jean Philippe Geoffroi, sadler and coach maker, Strasbourg, for a carriage, which it is impossible to upset—5 years.

— Napier, Charles, captain in the English Navy, and Polonceau, Antoine Remi, Versailles, engineer, for a system of floating bars, for the navigation of rivers—10 years.

— Revon, Pierre, mechanic, Paris, for the invention of a steam-engine, adapted to carriages and boats of all kinds and dimensions—10 years.

— Girard, Jean Joseph, lock-smith, of Bagnols, Gard, for a cotton spinning machine—5 years.

— Bouchet Roudier, Jean, merchant, Nismes, Gard, for a method of working, by a combination of levers, set in movement by manual labour, a variety of machines, in cotton spinning manufactories, mills, &c.—5 years.

— Tournier, Miss Francoise Pauline, milliner, Paris, for rolls worn round the heads of children, made of whalebone, and called *Bonnelets Hygieniques*—5 years.

— Decrouan, Michel François Denis, engraver, Paris, for a method of engraving upon linen, called *Tableaux Chalchographies*—5 years.

— Guerin de Foucin and Co. Paris, for an economical method of producing sulphuric acid—15 years.

— Hany, Guillaume, Boulogne-sur-mer, for the invention of one or more cylinders, to be adapted to atmospheric and condensing steam engines—15 years.

— Lepine, Paris, for a new invented lamp, and incombustible wick—5 years.

— Revillon, Thomas, Macon, for a wine press, acting by means of a pendulum, and for the application of the pendulum to mechanics—15 years.

— Penot, Jean Henri Achille, professor of chemistry, of Mulhause, Upper Rhine, for a method of obtaining sub carbonate, acetate, nitrate, and hydro-chlorate of lead—15 years.

— Peyron, Jean Louis, and Augier, Louis Andre, merchants, of Montelimar, Drome, for a machine for threshing and winnowing grain—10 years.

To Gervais, Paris, for a method of improving wines, brandies, and other spirituous liquors, by means of heat—10 years.

— Bouche, Dennis Joseph, Paris, for a machine for dressing cloth and other stuffs—10 years.

— Vallon, Pierre, cutler, Paris, for an artificial whet-stone, for sharpening razors—5 years.

— Martin, Ferdinand, surgeon, Paris, for a mechanical elastic bed for extending the spine or vertebral column—5 years.

— Vieville de Clanlieux, Paris, for a combing machine—15 years.

— Adam, Jacques François, Paris, for a moveable binding, adapted to public and other registers—10 years.

— Carswell, Messrs. Alexander and Robert, Greenworth, Scotland, for improvements in the building of vessels moved by machinery acting upon water—15 years.

— Berthault, Claude Jean Baptiste Alexandre, engineer, Chalons for the invention of waterproof cement—15 years.

— Pebezis, Pierre Jacques, geographical engineer, Paris, for the invention of an easy bed or bathing tub, called *baignoires dormeuses*—10 years.

— Pouillot, Jean Jerome, Paris, for a pneumatic regulator, adapted to hydrogen gas apparatus—5 years.

— Pepigne, Antoine, Paris, for a filtering machine—10 years.

— Courtois, Jacques Antoine, builder, for improvements in making tiles, and the manner of fixing them—15 years.

— Mrs. Widow Susse, of the family of Aglae, Reine Aube, engraver, Paris, for a method of engraving and marking all kinds of drawings, &c. upon skins and leather—10 years.

— Dupon, Jean Pierre, merchant, Paris, for an apparatus for heating and lighting houses by means of hydrogen gas, called the *Chimenee gazofumivore*—15 years.

— Noziet, Louis, clock and watch maker, Tours, for a machine by which the pendulum of clocks can adjust itself—5 years.

— Duport, Union, merchant, Paris, for jointed clogs—5 years.

— Mr. Pietrou, architect, Paris, for an autographic press—5 years.

— Ratcliffe, Thomas, iron founder, Paris, for a mechanical needle for spinning and twisting wool, silk, cotton, hemp, and flax—5 years.

— Godain, Jean Marie Theodore, hair dresser and perfumer, Paris, for a lotion called the *Creme des Lybarites*, for dying the hair—5 years.

— Luzier, Jean Jacques, gunsmith, Paris, for a method of producing two discharges from one barrel, either by percussion or flint—10 years.

— Picqueur, Onesiphon, mechanic, Paris, for a new system of towing vessels—10 years.

— Messrs. Blanc and Conville, Paris, for improvements in the use of steam engines in drawing off or raising water—15 years.

To Poupart, Abraham, manufacturer, Sedan, for the invention of cylinders with metallic blades, for cleaning carding, and combing wool, &c. and instead of thistles, in the napping of cloth—15 years.

— Messrs. Thebes, uncle and nephew, merchants, Forbes, for a method of bruising all sorts of oily grain—15 years.

— Messrs. Prevost and Co. Paris, for a mode of giving constant publicity to all acts, advertisements, &c.—5 years.

— Egg, Joseph, merchant, for a self-priming percussion gun—10 years.

— Egger, upholsterer, Paris, for improvements in making moveable tents—5 years.

— Morize, Jean Baptiste, cutler, Paris, for a pair of shears, with machinery for regulating the length to be cut, called *cisoir de proportion*—5 years.

— De la Roche, stove manufacturer, Paris, for an apparatus to be used instead of dogs in chimneys, and to supply the place of vent boles—5 years.

— Curreau, Noel Andre, Paris, for a mill for grating or grinding salts—5 years.

— Veret, Joseph, Brionne, Eure, for a machine for stretching wool—5 years.

— Brouillet, Louis Francois, Paris, for a distilling apparatus—5 years.

— Lantieres, Pierre, silk weaver, Lyons, for a machine for making the warp of silk—10 years.

— Messrs. le Comte, Reil, and Pichon, Paris, for a rotative machine, moved by steam—10 years.

— Godart, Jean Baptiste, Amiens, for a machine for peeling hemp and flax, with or without previous steeping—15 years.

— Messrs. Nezy Viry, and De Cormeille, Paris, for an apparatus called the *fumi comburateur*, for consuming smoke and all its hurtful particles—10 years,

— Vaughan, George, engineer, Paris, for improvements in steam-engines, whereby the force is augmented, and the expense diminished—10 years.

— Joanne, Brothers; Mouzin, Philibert; and Lecomte, Eugene, Dijon, for a machine for causing boats to sail up a current by the impulse of the water only, and which may be applied to land carriages by means of using steam—15 years.

— Muller, Charles Francois, Paris, painter, for a mechanical desk—5 years.

— Willer, Jean Charles Guillaume, surgeon, Paris, for a lotion, called *Eau d'Hebe*, for removing freckles—5 years.

— Poisson, Louis Pierre, Paris, for a process of making paper and pasteboard, of liquorice root—5 years.

— Garat, Joseph Dominique Febry, Paris, for an extra clog or shoe, called a *paracrotte*, for guarding the feet and legs from damp and dirt—5 years.

To Caire, Jean Alexis, Paris, for a machine with a swivel, for corking bottles—10 years.

— Marquis de Saint Croix Molay, Pierre Hyppolite de la Poterre, Paris, for the invention of moveable metallic arches, or metallic portable siloes—15 years.

— Messrs. Brian and De St. Leger, Paris, for a process for making hydraulic artificial lines—15 years.

— Dalton, Samuel, Paris, for a method of making silk, cloth, and other buttons, without seams, by machinery—5 years.

— Causon, Brothers, paper makers, of Armonay, for a method of sizing paper—15 years.

— Beaudouin, Jean Baptiste, Paris, for a sub-marine navigation—15 years.

— Houzeau, Nicolas, Paris, for a method of lighting by portable gas—5 years.

— Harmey, Joseph, Paris, for a method of using carding machines by hydrostatics—5 years.

— Lavand, Antoine, writing master, Perigueux, Dordogne, for a method of teaching four kinds of writing in twenty lessons, and ten in sixty lessons. This valuable system is called the *Calligraphie Francoise*—5 years.

— Durant, Nicholas Felix, Chalons-sur-Marne, for a new invented coffee pot—5 years.

— Tregnet, Vincent Pluvoise, piano-forte maker, Paris, for a piano with isolated sounding board—10 years.

— Joannis, secretary to the board of health, Paris, for a method of purifying metals, minerals, cast iron, and metals in general, used in casting—15 years.

— Proust, Alexis, Rochelle, Charente, for a distillery and apparatus—5 years.

— Revillon, Thomas, clock and watch maker, Macon, Saone and Loire for sundry improvements in striking the hours of public and private clocks—10 years.

New Patents Sealed in 1827.

To Robert Wheeler, of High Wycombe, in the County of Bucks, brewer, for his having invented or found out an improvement or improvements on, or in, refrigerators for cooling fluids.—Sealed 22nd November—6 months.

To William John Dowding, of the Parish of Poulshot, in the County of Wilts, clothier, for his invention of certain improvements in machinery, for rolling or rollering wool from the carding engine—22nd November 2 months.

To John Roberts, of Wood Street, Cheapside, engineer, and George Upton, of Queen Street, Cheapside, oil merchant, both in the city of London, for their invention of certain improvements on argand and other lamps—24th November—6 months.

To John Alexander Fulton, of Lawrence Pountney Lane, Cannon Street, in the city of London, spice merchant, for his invention of a process of preparing or bleaching pepper—26th November—6 months.

To Joseph Apsey, of John Street, Waterloo Road, in the Parish of St. Mary, Lambeth, engineer, for his invention of an improvement in machinery, to be used as a substitute for the crank—27th November—2 months.

To Joshua Jenour, junr. of Brighton-street, in the Parish of St. Pancras, in the County of Middlesex, Gentleman, for his new invented cartridge or case, and method of more advantageously enclosing therein, shot or other missils for the purpose of loading fire arms and guns of different descriptions——28th November—6 months.

To Thomas Bonner, of Monkwearmouthshore, in the County of Durham, merchant, for his invention of certain improvements on safety lamps—4th December 6 months.

To William Fawcett, of Liverpool, in the County of Lancaster, engineer, and Matthew Clark, of the Island of Jamaica, engineer, for their invention of an improved apparatus, for the better manufacture of sugar from the canes—4th December—6 months.

To Robert Water Winfield, of Birmingham, in the County of Warwick, brass founder, for his invention of an improvement or improvements in tubes or rods, produced by a new method or methods of manufacturing, and in the construction of, and for manufacturing the same with various other improvements into parts of bedsteads, and other articles—4th December—6 months.

To John Meaden, of Milbrook, near Southampton, in the county of Hants, coach maker, for his invention of certain improvements on wheels for carriages—4th December—6 months.

To Samuel Wilkinson, of Holbeck, in the county of York, mechanic, for his invention of improvements in mangles, which he intends to denominate Bullman's patent cabinet mangle—4th December—6 months.

To Maurice de Iongh, of Warington, in the county of Lancaster, cotton spinner, for his invention of an improvement or improvements in machines adapted for spinning doubling, twisting, roving, or preparing cotton, and other fibrous substances—4th December—6 months.

To Thomas Tyndall, of Birmingham, in the county of Warwick, gentleman, in consequence of a communication made to him by a foreigner residing abroad, for improvements in the manufacture of buttons, and in the machinery or apparatus for manufacturing the same—4th December —6 months.

To Daniel Ledsam, and William Jones, of Birmingham in the county of Warwick, manufacturers, for their invention of certain improvements in machinery for cutting sprigs, brads, and nails—4th December—6 months.

To Joseph Robinson, of Merchant's-row, Limehouse, in the county of Middlesex, brush maker, for his invention of an improvement in the manufacture of brushes of certain descriptions, and the application thereof to the manufacture of brushes, and other purposes—4th December—6 months.

To Paul Steenstreep, of Basing Lane, in the city of London, esq. for his invention of certain improvements in machinery for propelling vessels, which improvements are applicable to other purposes—11th December—6 months.

To John Harvey Sadler, of Hoxton, in the county of Middlesex, mechanist, for his invention of certain improvements on power-looms, for the weaving of silk, cotton, linen, wool, flax, and hemp, and all mixtures thereof—13th December—6 months.

To Ralph Rewcastle, of Newcastle-upon-Tyne, millwright, for his invention of a new and improved method of balasting ships or vessels—13th December—6 months.

To Robert Stein, of Regent-street, Oxford-street, in the county of Middlesex, gentleman, for his invention of an improvement in applying heat to the purpose of distillation—13th December—6 months.

To Frederick Benjamin Geithner, of Birmingham, in the county of Warwick, brass founder, for his invention of certain improvements on castors for furniture and other useful purposes—13th December—6 months.

To Henry Peto, of Little Britain, in the city of London, surveyor and builder, for his invention of an apparatus for generating power—13th December—6 months.

To Joseph Anthony Berrollas, of Nelson-street, City-road, in the parish of Saint Luke, in the county of Middlesex, watch manufacturer, for his having invented or found out a method of winding up a pocket watch or clock without a key, which he calls Berrollas's keyless watch or clock; and also a certain improvement to be applied to his late invented detached alarum watch—13th December—2 months.

To Audrew Motz Skene, of Jermyn-street, in the county of Middlesex, esq. a lieutenant in our royal navy, for his having invented and found out an improvement or improvements in the mode of propelling vessels through the water, and for working under shot water mills—15th December—6 months.

To John Lee Stephens, of Plymonth, in the county of Devon, merchant, for his having invented or found out a new or improved method or methods of propelling vessels through or on the water by the aid of steam, or other means or power, and for its application to other purposes —18th December—6 months.

To Thomas Tyndall, of Birmingham, in the County of Warwick, Gentleman, in consequence of a communication made to him by a foreigner residing abroad, for certain improvements in the machinery to be employed in making nails, brads, and screws—18th December—6 months.

To John George, of Chancery Lane, in the County of Middlesex, Esq. barrister at law, for his having found out or discovered an invention for preserving decked ships or vessels, so as to render them less liable to dry rot, and for preserving goods on board such ships and vessels from damage by heat—18th December—6 months.

To Thomas Stanhope Holland, of the city of London, Esq. for his invention of certain combinations of machinery, for generating and communicating power, and motion applicable to propelling of fixed machinery, as also floating bodies, carriages, and other loco-motive machines—19th December—6 months.

To William Harland, M. D. of Scarborough, in the County of York, for his having invented certain improvements in apparatus or machinery, for propelling loco-motive carriages, which improvements are also applicable to other useful purposes—21st December—6 months.

To Charles Augustus Ferguson, of Mill Wall, in the Parish of All Saints, Poplar, in the county of Middlesex, mast maker, and James Falconer Allee, of Prospect-place, Deptford, in the county of Middlesex, Gentleman, for their invention of certain improvements in the construction of made masts—22nd December—6 months.

To William Hale, of Colchester, in the county of Essex, merchant, for his invention of certain improvements in machinery or apparatus for propelling vessels—22nd December—6 months.

METEOROLOGICAL JOURNAL FOR NOVEMBER AND DECEMBER, 1827.

1827.	Thermo.		Barometer.		Wind.	Weather.
	Max	Min.	Morn.	Even.		
Nov						
25	38	25	29,76	29,92	S E—N E	Thaw—fog—rain ¼ in .25
26	43	35	30,06	30,16	W	Fair—clear—fog night
27	46	35	30,13	29,98	S. W.	Ditto—ditto
28	45	34	29,82	29,48	S	Cloudy—wind
29	49	41	29,23	29,34	S W—W	Rain .62—fair
30	50	44	29,34	29,12	W—S W	Ditto—slight cloudy
Dec						
1	53	45	28,94	28,85	W	Stormy—thun—light.—rain ·50
2	45	42	28,98	29,26	W—N W	Rain .12
3	48	43	29,53	29,60	S—S W	Cloudy—fair—fog
4	54	48	29,58	29,68	W—S W	Ditto— rain .25
5	55	48	29,74	29,62	S W	Ditto fair—high wind
6	53	33	29,66	29,97	N W	Ditto—ditto—wind
7	48	36	29,97	29,62	W—S W	Ditto—ditto—ditto
8	46	34	29,68	29,74	W—N W	Rain .12—fair wind
9	48	34	29,72	29,52	S	Fair—cloudy—damp
10	55	50	29,44	29,22	S W—S	Cloudy—wind— rain .5
11	50	43	29,31	29,23	S W	Ditto—ditto—ditto—rain .50
12	45	37	29,28	29,20	S W	Ditto—fog—ditto .25
13	44	36	29,32	29,45	W	Fair—clear
14	48	38	29,33	29,39	S W	Stormy—wind—rain .70
15	52	43	29,50	29,35	S. W.	Cloudy—wind—rain .12
16	45	40	29,51	29,78	S. W	Ditto—ditto —ditto .25
17	46	37	29,94	29,72	W—S W	Fair—clear—wind
18	53	47	29,62	29,47	S W—S	Rain .50—ditto
19	54	49	29,38	29,40	S W	Ditto .50—ditto
20	49	40	29,38	29,39	W	Fair—clear—ditto
21	45	39	29,50	29,29	W	Ditto—rain slight
22	57	44	29,22	29,31	W—S W	Ditto—cloudy
23	48	41	29,65	29,83	N—S W.	Rain .20—fair

Hitchins. **WATSON PERKS.**

CELESTIAL PHENOMENA for January, 1828.

D.	H.	M.	S.	
1	0	0	0	Clock before the ☉ 3' 35"
1	17	56	0	Ecliptic opposition or ☻ Full Moon.
4	4	0	0	♂ in conj. with ♄ long. 10° in Scorpio ♂ lat. 1° 5' N. ♄ long. 1° 8' N. diff. long. 3'
4	6	0	0	☾ in conj. with 1 α in Cancer
4	7	0	0	☾ in conj. with 2 α in Cancer
5	5	0	0	☾ in conj. with ο in Leo
5	15	0	0	☾ in conj. with π in Leo
7	17	0	0	☾ in conj· with υ in Leo.
8	11	0	0	♂ in conj. with 2 α in Libra
9	1	0	0	♀ in conj. with ☋ in Capri
9	19	15	0	☾ in □ last quarter
9	23	0	0	☾ in conj· with α Virgo
10	0	0	0	Clock before the ☉ 7' 36"
10	17	3	32	♃'s Satt. will immerge
10	23	0	0	☾ in conj with λ in Virgo
2	12	0	0	☾ in conj. with ♃ long. 12° in Scorpio ☾ lat. 53' N. ♃ lat· 1o 10' N. diff. lat. 17'
11	13	0	0	☾ in conj. with 2 α in Libra
11	16	0	0	☾ in conj. with ♂ long. 14° in Scorpio ☾ lat. 1° 5' N. ♂ lat. 1° 3' N. diff. lat. 2'
12	7	0	0	☾ in conj. with 4 ξ in Libra
12	22	0	0	☿ in conj. with γ in Scorpio
13	6	0	0	☿ in conj. with 1 γ in Sagit
15	0	0	0	Clock before the ☉ 9' 32"
15	21	0	0	♄ in conj. with δ in Gemini
15	22	0	0	♀ in conj. with γ in Capri
16	12	24	0	Ecliptic conjunction or ● New Moon.
17	7	0	0	♀ in conj. with δ in Capri.
17	18	56	58	♃'s first satt. will immerge
20	0	0	0	Clock before the ☉ 11' 12"
20	11	56	0	☉ enters Aquarius
22	0	0	0	☽ in conj. with ε in Pisces
23	8	45	0	☽ in □ first quarter
23	18	0	0	♄ in conj. with 2 α in Libra
25	22	0	0	♂ in conj. with 4 α in Libra
26	1	0	0	☽ in conj. with ε in Taurus
26	15	18	48	♄'s first satt. will immerge
29	13	0	0	♂ in conj. with κ in Libra,
31	6	0	0	♀ in conj. with λ in Aquar.
31	12	0	0	☽ in conj. with 1 α in Cancer
31	13	0	0	☽ in conj. with 2 α in Cancer
31	13	4	0	Ecliptic Opposition or ☻ Moon

The waxing moon ☽ —the waning moon ☾.

Rotherhithe. J. LEWTHWAITE.

METEOROLOGICAL JOURNAL, for November and December, 1827.

1827.	Thermo.		Barometer.		Rain in inches.
	Hig.	Low.	High.	Low.	
Nov.					
26	48	28	30,32	30,20	
27	41	29	30,32	30,18	
28	47	26,5	30,04	29,84	
29	50	29	29,46	29,34	,3
30	52	37	29,46	stat.	,05
Dec.					
1	53	41	29,08	28,97	,075
2	46	41	29,28	29,06	,2
3	48	40	29,78	29 63	,1
4	56	37	29,84	29,76	,15
5	57	45	29,90	29,83	,025
6	49	45	30,07	29,74	
7	49	31	30,16	29,96	
8	47	32	29,93	29,76	,1
9	52	27	29,89	29,66	
10	54	47	29,59	29,46	,025
Nov					
11	49	43	29,45	29,40	,05
12	47	32	29,40	29,36	,75
13	48	33	29,64	29,42	,15
14	50	34	29,45	28,24	,1
15	53	38	29,66	29,58	,6
16	43	41	29,91	29,58	,275
17	47	32	30,10	30,00	
18	53	43	29,70	29,66	,125
19	54	48	29,56	29,52	,475
20	48	42	29,56	29,52	,55
21	45	33	29,61	29,42	
22	54	41	29,59	29,43	,225
23	47	39	30,02	29,70	,15
24	56	34	29,86	29,72	,075
25	48	37	30,33	30,23	,125

LOWER EDMONTON. CHARLES H. ADAMS.

LITERARY AND SCIENTIFIC NOTICES.

In the Press, and will appear in the ensuing month, "A Manual of Natural and Experimental Philosophy;" being the substance of a Series of Lectures delivered in the London, Russel, Surrey, and Metropolitan Institutions, by Charles F. Partington, author of an Historical and Descriptive Account of the Steam Engine; Gallery of Science, &c. &c. Illustrated by four copper-plates, and two hundred and seventy wood engravings.

A prospectus has been issued for publishing two plates of the late memorable Battle of Navarino, from drawings made by J. Theophilus Lee, Esq. under the immediate inspection of Lord Ingestrie, who brought home the despatches, &c., from plans and drawings made by his lordship and other officers who were in the action.

The situation of principal Librarian to the British Museum, vacant by the death of the late Joseph Planta, esq. F. R. S. has been filled up by his Majesty's appointing Henry Ellis, esq. F. R. S. to succeed him.

It is but a short time since we first saw published, some beautiful specimens of printing in gold, which was the invention of a Mr. Brimmer; and he has further succeeded in bringing to perfection another similar process, which is likely to be more valuable in the fine arts; it is the employing of lead in the same manner as gold. The appearance given to engravings, printed by means of this art, is, that they bear a resemblance somewhat between a highly finished pencil drawing and a fine wood engraving. There is but little doubt when this process is more known, that it will be extensively applied to works of art for illustrations.

Shortly will be published, the Travels of Viscount Chateaubriand, in America, Italy, and France. The work will be printed in octavo.

Messrs. Storer has nearly ready for publication, a Series of Picturesque Views, illustrative of the University of Cambridge, its Colleges, Halls, and other Public Buildings, especially such portion of them as are of recent erection, &c. &c.; together with different Parochial Churches, with some specimens of the domestic architecture, which formerly obtained in Cambridge; many curiosities, &c. deposited in the Museum and in different Colleges.

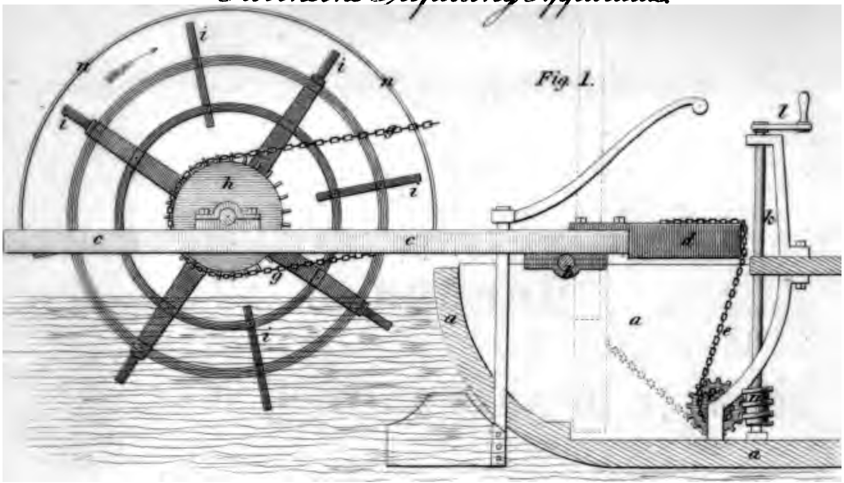
A Mr. Joseph Hilport, of Hilderbery, is engaged in the preparation of an elaborate Dictionary of the English and German languages. The dictionary is intended not only to give the meanings of words, but to trace the etymology of all the words, and follow them through all their ramifications. The editor has received assistance from Voss the translator of Shakespeare; and also from Merian, the author of the Tripartitum. The work, it is presumed, will form four volumes quarto.

Fourteen surveys made of various parts of the coast of South America, during the last three years, have been offered to the Geographical Society at Paris, by Captain Skiddy, for the purpose of being engraved.

In the Press, to be published in one volume quarto, with a map and several illustrative engravings from the author's own sketches, a Narrative of a Journey through the upper provinces of India, from Calcutta to Bombay. By the Right Rev. Reginald Heber, late Lord Bishop of Calcutta.

New Law Courts. John Soane, esq. the Professor of Architecture in the Royal Academy, is about to publish a Brief Statement of the proceedings respecting the erection of the New Law Courts at Westminster, with plans and explanatory illustrations.

Robinson's Propelling Apparatus



Halliday's Rotatory Steam Engine

Fig. 4.

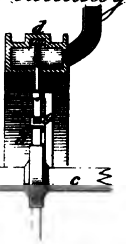
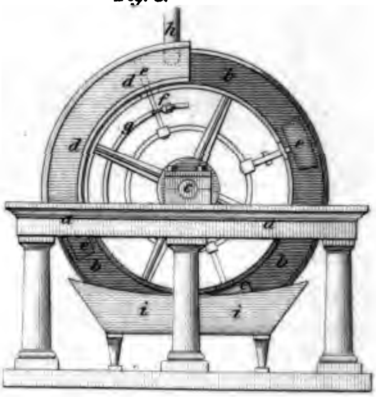
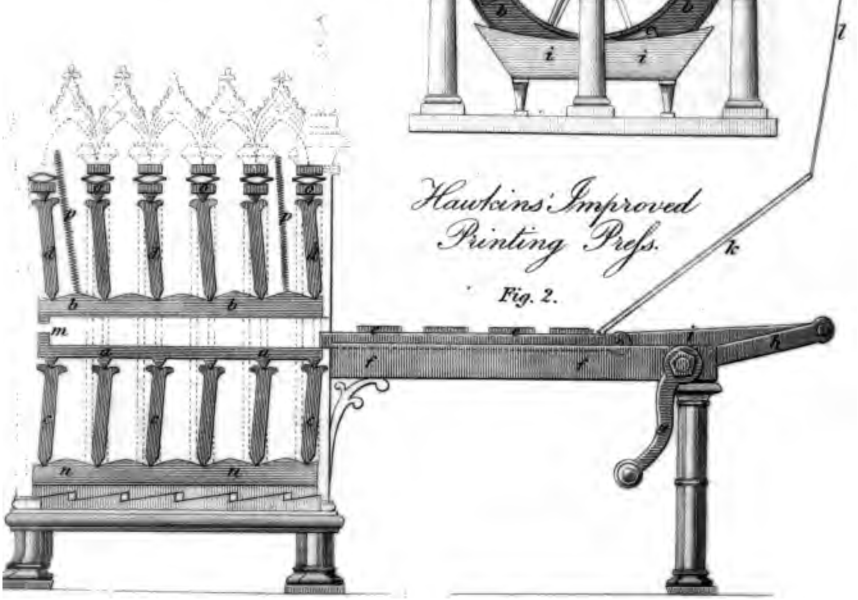


Fig. 3.



Hawkins' Improved Printing Press

Fig. 2.



ton del. 1st Febr. 1828. S. Bellin

THE

London

JOURNAL OF ARTS AND SCIENCES.

No. LXXXVIII.

Recent Patents.

To William Robinson, *of Craven Street, Strand, in the County of Middlesex, Esq. for his having Invented or found out a new method of propelling Vessels by Steam on Canals, or Navigable Rivers, by means of a moveable apparatus attached to the stem or stern of the Vessel.*

[Sealed 24th July, 1826.]

The moveable apparatus, herein proposed, is simply a paddle wheel, of the kind usually employed for propelling vessels on water, which is turned by a rigger and endless chain, leading from a steam engine, and the novel feature is, a peculiar method of lowering the wheel down into the water, so that its paddles may be immersed to any required depth; or of raising it up out of the water, when its action is suspended. The manner of adapting this wheel to the vessel, and the apparatus connected thereto, is shewn in Plate XIV, at fig. 1.

A part of the stern of a vessel is represented in section at *a*, *a*, upon the side beams of which, a shaft *b*, is supported carrying the arms *c*, that bear the axle of the wheel. At the hinder part of the arms, there is affixed a ponderous block of iron *d*, intended to balance the weight of the wheel, which with its arms is kept at any required height by a chain *e*, attached to the block, and brought round the barrel of a small windlass *f*, below.

The rotatory power of a steam engine within the vessel is communicated to the paddle-wheel by an endless chain *g*, *g*, passed over a spur wheel *h*, upon the axle of the wheel, the paddles *i*, *i*, *i*, of which, are broad plates fixed to the arms in radial positions as usual; and the wheel, partly immersed in the water, being thus driven round, as shewn by the arrow, the vessel is propelled in an opposite direction.

In order to alter the position of the arms *c*, for the purpose of raising or lowering the wheel, the vertical shaft *k*, must be turned round by a winch *l*, which shaft has an endless screw *m*, at bottom, taking into the toothed wheel of the windlass *f*, and thus the rotation of the shaft *k*, causes the chain *e*, to wind or unwind upon the barrel of the windlass, and to elevate or depress the arms *c*, and consequently to raise the wheel up out of the water, as shewn by dots, or to lower it further into the water if required.

This elevation of the paddle-wheel, it is considered will be particularly convenient when the vessel is passing through locks, and the adjustment in the depth of its immersion will be extremely desirable in accommodating the height of the propelling wheel to the draft of the vessel, which must necessarily vary according to the lading.

In order to prevent the water, which is thrown back by the paddles, from washing against the banks of canals, and narrow rivers, it is proposed to affix shields on the sides of the wheel, immersed a little way in the water; and to prevent splashing, the upper half of the wheel is to be covered by the box or hood *n*, *n*.

The paddle wheel with the improved apparatus, above described, may be placed either at the head or stern of the vessel, as may be most convenient, and the steam-engine by which it is to be driven, is proposed to be erected upon a platform, so as to enable it to be removed from one part to another part of the vessel, which it is thought will be found to be desirable, in order that the vessel may be balanced at all times, whether laden or unladen.

The patentee claims his mode of effecting the three following objects; 1st, raising and lowering the propelling wheel by his moveable apparatus; 2nd, the adaptation of shields to the sides of the wheel, to confine the agitation of the water; and 3d, the contrivance of moving the engine to any part of the vessel which occasion may require.

[*Inrolled September*, 1826.]

A contrivance by which the paddle wheel might be raised or lowered upon arms, nearly in the same way as the above, was introduced into this country from America, about twenty-years ago. EDITOR.

To Marc Larivière, *of Prince Square, Kennington, in the County of Surry, Machinist, for his Invention of a certain Apparatus or Machinery to be applied to the well known Stamp Fly Press, or other Presses for the purpose of Perforating Metal Plates, and for the application of such Perforated Metal Plates to various useful purposes.*

[Sealed 28th November, 1825.]

This invention is an apparatus to be applied to a fly-press, used for stamping holes in metal, and consists of a series of punches, which are to be brought into action at one time, instead of piercing the holes singly, as is the usual practice.

The fly-press intended to be employed in conjunction with this apparatus, does not materially differ from the ordinary press used for stamping holes in plates or sheets of metal, except in the construction of the piercer and matrix, the former of which is made with any desired number of punches, and the latter with a corresponding number of holes.

In order to form a correct notion of this invention, it is necessary to state, that the patentee's object is to stamp a multitude of small holes in a metallic plate, at equal distances apart, with extreme accuracy, and considerable expedition; which plates when so pierced, are to be employed for sieves, and such other purposes as wire-gauze has been heretofore applied to.

When the holes are to be pierced in the sheet or plate of metal in straight lines, a series of small punches are fixed in the lower part of the plunger of the fly-press, the bed or matrix fixed below being perforated with corresponding holes, fitting very accurately to the punches; the sheet or plate of metal is then fastened by cramps to a sliding frame, which conducts it along under the punches. The fly of the press being now turned round horizontally as usual, the punches are brought down and forced through the plate or sheet of metal, producing the first row of holes; the pieces of metal falling down below: and the punches being raised again out of the holes, a winch connected to a worm shaft is turned round, which drives the sliding carriage forward, and advances the plate or sheet of metal sufficiently far to bring the plate into a situation for piercing the next row of holes, and so on, until the whole of the plate or sheet of metal is pierced full of rows of holes at equal distances apart.

If the plates are to be perforated with circular ranges of holes, then a piercer with a suitable number of punches set in concentric circles is to be employed, and a matrix with corresponding holes fixed under it. In some cases, when a circular plate of considerable diameter is to be perforated, it will not be desirable to punch all the holes at once, but to employ a piercer and matrix, in which the punches and holes are ranged in the form of a quadrant, or sextant, or octant, or any other equally divided portion of a circle, and then after every operation, to turn the plate round by machinery, so that the piercers shall fall exactly along-side of the outer ranges of the preceding sector, and thus, by a succession of four, six, eight, or any other number of operations, the area of the complete circle shall be equally and entirely perforated.

It must be obvious, that for every differed arrangement of holes, different punches and matrixes must be employed, and thus plates or sheets of metal may be pierced with holes of any size and closeness, from that of an ordinary colander, to the fineness of gause.

The patentee claims as a second feature of his invention, the application of the perforated metal plates or sheets to the making of sieves, lanterns, and all other kinds of utensils for which wire gauze has been heretofore employed.

[*Inrolled May,* 1826.]

To James Neville, *of New Walk, Shad Thames, in the County of Surry, Engineer, for his Invention and discovery of a new and Improved Boiler or Apparatus, for Generating Steam, with less Expenditure of Fuel.*

[Sealed 14th March, 1826.]

This invention is a boiler for generating steam, constructed in the form of a column or upright cylinder, with a dome top, the furnace being in the interior, and a series of tubes, constituting the flue, passing up and down, the whole of which are surrounded by the water.

Plate XV, fig. 2, exhibits the external form of the apparatus: fig. 3, the same in section, consisting of an outer case *a, a, a,* which indeed constitutes the external surface of the boiler; *b,* is the furnace within, placed upon grate bars with an ash-pit below, and surrounded on all sides by water, except at the parts where the doors open to the furnace. The flame, smoke, and other heated vapour emitted from the fire, passes upwards through a series of perpendicular tubes *c, c, c,* which are placed in circular ranges round the central tube, and open at top into an hemispherical chamber *d*. From this chamber *d*, the heated vapour passes downwards through the tubes *e*, *e*, to the chamber *f*, below, and ultimately escapes by the aperture *g*, into the chimney.

The heat transmitted from the furnace, and from the tubes, causing the water surrounding them to boil, the steam rises into the dome top of the boiler *h*, and from thence passes down the tube *i*, *i*, into an elliptically formed vessel *j*, and from that vessel through the pipe *k*, to the steam engine. The vessel *j*, being in immediate contact with the fire, and the tube *i*, *i*, being likewise exposed to the action of the heat in the central flue, the steam contained therein becomes heated considerably above the boiling point, and when discharged at the pipe *k*, is high pressure steam.

The upper part of the boiler is furnished with a safety valve *l*, to prevent the dome from being exploded by any extraordinary force of the steam. The furnace is enclosed by doors, and through an aperture *m*, in the lower one, a blast of wind may be conveyed by bellows into the ash-pit, for the purpose of supporting and stimulating the combustion of the fuel; and in order to gain access to the furnace, for raking and clearing out, a door *n*, is placed in the back part.

The patentee states, that his improvements are susceptible of some variation from the plan exhibited in the figure; for instance, the tubes may be bent or inclined out of the perpendicular, for the purpose of reducing the height of the boiler, but the invention of passing the heated vapour from the furnace through a series of flues surrounded by water, and of heating the steam to a high pressure in the tube and vessel *i*, and *j*, being as he conceives new, he claims the same as his invention and patent right.

[*Inrolled September*, 1826.]

To SAMUEL BROWN, *of Eagle Lodge, Old Brompton, in the County of Middlesex, Gentleman, for his Invention of certain Improvements in Machinery, for Making or Manufacturing Casks or other Vessels.*

[Sealed 8th November, 1825.]

THE machinery which forms the subject of this patent, consists in the first place, of a circular saw attached to a bench, with a sliding rest, upon which rest, each piece of wood intended to form a stave of a cask is fixed; and the rest being then slidden forward in a curved direction, by the assistance of an adjustable guide, brings the piece of wood against the edge of the rotatory saw, and causes it to be cut into the curved shape required for the edge of the stave. The second feature is an apparatus with cutters attached to a standard, and traversing round with their carrier upon a centre, by means of which, the upper and lower edges of the cask are cut round and grooved, called chining, for the purpose of receiving the heads. Thirdly, an apparatus not very dissimilar to the last, by which the straight pieces of wood designed for the heads of the cask are held together, and cut to the circular figure required, and also the bevelled edges produced. And fourthly, a machine in which the cask is made to revolve upon an axis, and a cutting tool to traverse for the purpose of shaving the external part of the cask, and bringing it to a smooth surface.

The pieces of wood intended to form the staves of the cask, having been cut to their required length and breadth, are placed upon the slide rest of the first mentioned machine, and confined by cramps, and the guide, which is a flexible bar having been previously bent to the intended curve of the stave and fixed in that form, the rest is then slidden forward upon the bench by the hand of the workman, which as it advances (moving in a curved direction) brings the piece of wood against the edge of the revolving circular saw, by which it is cut to the curved shape desired.

The guide is a long bar held by a series of moveable blocks fitted to the bench by screws, and is bent to any desired curve by shifting the screws, the edge of the slide rest which holds the piece of wood about to be cut, runs against the long guide bar, and of consequence is conducted in a corresponding curved course. The circular saw receives a rapid rotatory motion by means of a band and rigger from any first mover; and the piece of wood may be shifted laterally by means of racks and pinions on the side rest, by the workman turning a handle, which is occasionally necessary in order to bring the piece of wood up to, or away from the saw.

The necessary number of staves being provided, they are then set round within a confining hoop at bottom, and brought into the form of a cask in the usual way, and braced by temporary hoops. The barrel part of the cask being thus prepared, in order to effect the chining, it is placed in a frame upon a platform, which is raised up by a treadle lever, that the end of the barrel may meet the cutters in a sort of lathe above, the cutters are then made to traverse round within the head of the barrel, and as they proceed, occasionally to expand, by which means the bevels and grooves are cut on the upper edge of the barrel, which is called chining. The barrel being now reversed, the same apparatus is brought to act against the other end, which becomes chined in like manner.

The pieces of wood intended to form the heads of the cask, are now to be cut straight by a circular saw in a machine, similar to the first described, but in the present instance, the slide rest is to move forward in a straight course. After their straight edges are thus produced, they are to be placed side by side, and confined, when a scribing cutter is made to traverse round, and cut the pieces collectively, into the circular form desired for heading the cask.

The cask having now been made up, and headed by hand as usual, it is placed between centres, or upon an axle in a machine, and turned round by a rigger and band with a shaving cutter, sliding along a bar above it, which cutter being made to advance, and recede as it slides along, shaves the outer part of the cask to a smooth surface.

[*Inrolled May*, 1826.]

To JOHN ISAAC HAWKINS, *of Chase Cottage, Pancras Vale, in the County of Middlesex, Civil Engineer, for his Invention of Improvements on certain Implements, Machines or Apparatus, used in the Manufacturing, and preserving of Books, whether bound or unbound.*

[Sealed 1st November, 1825.]

THE leading feature of the invention, stated in the above ambiguous title, is a printing press, in which the mechanical power is communicated by a crank through the agency of a series of infinite levers, or as the patentee calls them indefinite levers; the same principles being also applicable to presses, for various other purposes; a second feature is the construction of a portfolio intended to receive the sheets of paper collated into the form of a book.

Plate XIV, fig. 2, exhibits the construction of a printing press upon the improved plan. The general framing of the press is of cast iron, and represents a gothic edifice, which not forming any essential part of the proposed improvement is chiefly delineated by dots. The operative parts are *a*, *a*, the table; *b*, *b*, the platten; *c*, *c*, and *d*, *d*, the levers, which being brought into perpendicular positions, or nearly so, cause the table and the platten to approach each other; *e*, *e*, is the form of types sliding upon the side rails *f*. A winch *g*, turns the crank *h*, and rods *i*, connected to the crank and to the form by means of joints, which cause as the crank goes round, the form of types to run in and out of the press.

Supposing the types *e*, to have been inked, and the paper laid on in the usual manner, by folding down the frisket *k*, and tympan *l*, the form may then be run in between the table and platten by turning the winch, which drives the crank *g*, and when the end of the form has reached the ledges *m*, the force by which it is driven, pushes back the table and platten, and brings the levers *c*, *c*, *c*, and *d*, *d*, *d*, nearly into perpendicular positions, by which means the form becomes pinched very powerfully between the table and platten, and the required impression of the types is given to the paper.

In order the more perfectly to explain the construction of this press, it may be necessary to state that the levers *c*, *c*, *c*, and *d*, *d*, *d*, are thick metal plates extending across the full width of the machine, their lower edges being bevelled off at acute angles, or formed with what is called knife edges, but the upper parts of the plates or levers are on the contrary shaped hollow. The bed or bearing *n*, *n*, on which the levers *c*, are supported, is formed on its upper surface with ribs and hollows, or obtuse angled grooves extending across the machine, in which grooves the knife edges of the levers rest; and at the under side of the table *a*, there is a corresponding number of acute angled ribs which are respectively received by the hollows, at tops of the several levers *c*, *c*, *c*. The upper side of the platten *b*, *b*, is formed with obtuse grooves, extending across it, and the lower edges of the plates or levers *d*, being shaped with knife edges, rest in those grooves in the same way as the levers *c*, on the bed *n*. The upper edges of the levers *d*, are also hollowed, and receive the knife edges of the blocks *o*, *o*, *o*, which form their resistance, the platten being held up by strong helical springs *p*, *p*. And in order to afford a certain degree of elasticity to the action of the infinite levers (or indefinite levers) *c*, and *d*, the blocks *o*, are not perfectly fixed in the machine, but have springs placed above them, intervening between each block, and the fixed resisting part of the framework.

It will now be clearly seen that on forcing back the table and platten *a*, and *b*, by the edge of the form *e*, striking against them at *m*, in the way above described, that the plates or levers *c*, and *d*, will be brought nearly, into perpendicular positions, and an immense pinch be given by the inner surfaces of the table and platten to the form of types, with the tympan, frisket, and paper between them, which is designed to produce the required impression.

In order to adjust the pressure by placing the table and platten nearer together, or farther apart, the bed *n*, is supported by wedge formed blocks, which on being slidden a short distance raise or lower the bed, and consequently effect the required adjustment. There is also a mode suggested of increasing the power of the winch *g*, so as to give greater effect to the force exerted upon it by the workman, which is by the employment of a double armed winch, connected to a compound lever, or two bars so placed as to produce what is termed an infinite power the workman at the time the pinch is required to be given, exerting his strength by applying his hands to both arms of the winch.

The same principles and manner of applying the series of infinite levers, as described above, is also applicable to presses for various other purposes beside printing; such as pressing cloth, paper, and a variety of goods, but in those cases slight modifications in the parts of the machine, and particularly in the form of the frame-work, would be requisite; and the winch must then be applied in a different way with racks and palls to hold the press tight when driven up.

The second feature of this invention is an improved portfolio, the sides of which may be made of pasteboard, wood, or metal, and covered with leather, and ornamented as usual, but the back is to be double, that is, the internal part of the back is to be made flexible, and the outer part stiff. The end of a thread or other small cord, wound upon a sort of netting needle, is to be attached to the lower part of the back of the portfolio, when a sheet of paper being placed open in the portfolio, the thread is laid up the middle of the sheet, and the needle passed down between the two backs, which draws the thread tight, and confines the sheet of paper. In fixing a second sheet in the portfolio, the needle with the thread, is passed through between the double back, and another length of thread placed up the middle of the sheet, which being drawn tight, the needle is again inserted between the backs, and thereby the sheet is secured. Thus any number of sheets may in succession be secured into the portfolio, which is designed as a temporary sort of binding of loose sheets into the form of a book.

[*Inrolled May* 1826.]

To Ezekiel Edmonds, *of Bradford, in the County of Wilts, Clothier, for his Invention of certain improvements on Machines for Scribbling and Carding Sheeps Wool, Cotton, or any fibrous articles requiring such process.*

[Sealed 3rd December, 1825.]

The improvements which constitute the subject of this patent, are simply variations in the arrangement of the card rollers belonging to a carding engine, of the construction commonly employed for straightening the fibres of wool and cotton.

The patentee has arranged these improvements under four heads: First, a mode of reducing the speed of the working rollers, at the back of the large cylinder. Secondly, an additional roller which conducts the bands that lead from the preparing rollers to the working rollers, in order to increase the velocity of the former, and diminish that of the latter. Thirdly, a roller near the doffer, which catches any of the material that falls, and gives it again to the large cylinder. And, fourthly, a new arrangement of the working rollers, and the introduction of a small roller between every two of them, for the purpose of changing the direction of the fibres.

The small cylinder and its rollers, called the breaker, which receives the material in the first instance, from the feeding cloth, is made to revolve with great speed, for the purpose of breaking up, and preparing the material. The fibres are then received on to the periphery of the large cylinder, and as that revolves, are communicated to the first of the working rollers, on the back of the large cylinder; which rollers being actuated by a band from a small roller below, do not move so fast as in ordinary carding engines. The first working roller, as it goes round, gives the material just received to the intermediate roller, which delivers it to the second working roller, and that to the large cylinder again; the large cylinder then communicates it to the third working roller, and through its intermediate roller to the fourth, and again to the large cylinder, and so on, thus changing the direction in which the fibre is carded, and interrupting the speed of the operation; and any loose materials which may happen to have escaped from the cards, and be carried round by the large cylinder, is received by a roller near the doffer, and given to the large cylinder, to be operated upon.

Thus it will be perceived, the improvement is founded merely upon a supposed advantage which may result from turning over the fibres of the wool or cotton in a different way to other carding engines, and in varying the speed of the several revolving rollers, in a different way to other carding engines, and not in any variation of the principles of a carding engine, or indeed, in its general construction.

[*Inrolled May*, 1826.]

To Matthew Farris, *of Longford, in the County of Middlesex, Calico Printer, for his new Invented Improvements on Presses, or Machinery for Printing Cotton and other fabrics.*

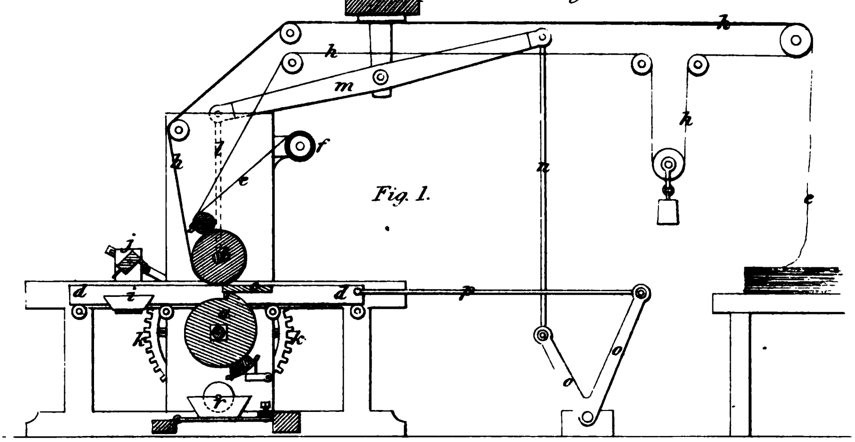
[Sealed 14th December, 1825.]

This specification commences with a description of the ordinary press and its appendages employed for printing calico, and such kind of fabrics, and proceeds to explain the patentee's improved apparatus to be adapted to that description of machinery, which improvements are designed principally to supersede the necessity of manual labour in the operation of calico printing.

Plate XV, fig. 1, exhibits the printing press shewn partly in section; *a*, is the bed or bearing roller; *b*, the pressing roller: *c*, the copper-plate, fixed upon sliding rails *d*, *d*, which plate has the design engraved upon it, that is intended to form the pattern about to be printed; *e*, is the sheet of calico, first wound upon the roller *f*, and then conducted over the guide roller *g*, and round the pressing roller *b*, from whence it proceeds with the endless felt *h*, *h*, *h*, through a long extent of surface, in order that the colour printed upon it, may become dry; *i*, is the trough containing the colour; and *j*, the scraper, by which the superfluous colour is removed from the face of the plate.

Ferris's Machinery for Printing Cotton.

Fig. 1.



Nevilles Impd. Steam Boiler.

Fig. 2.

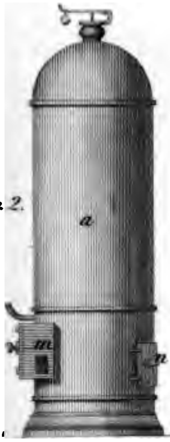
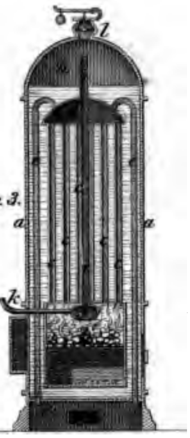


Fig. 3.



Schallers Impd. Clogs.

Fig. 6.

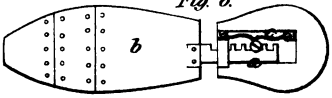


Fig. 10.

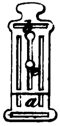


Fig. 7.

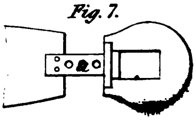


Fig. 9.

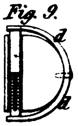
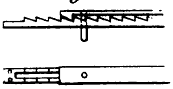
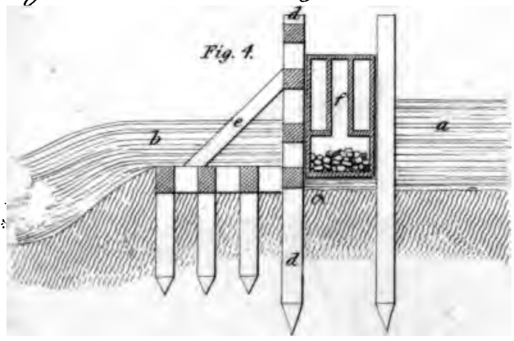


Fig. 8.



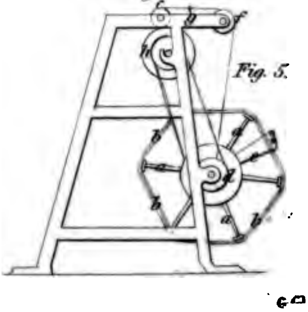
Koymans Impd. Sluice Gate.

Fig. 4.



Fanshaw's Silk Winding Apparatus.

Fig. 5.



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A winch being applied to the axle of the bearing rollers *a*, it is made to revolve, and the enlarged part of the periphery of that roller coming under the copper-plate *c*, raises the plate up against the sheet of calico; when, the progress of the roller *a*, carries the plate forward, and with it the calico and the pressing roller, by which means the calico becomes printed. The copper-plate being now in its advanced situation, the workman with a brush takes the colour from the trough, and rubs it over the plate, the surface of which he immediately afterwards scrapes clean by the scraper *j*, consisting of a thin piece of steel, and the copper plate being now slidden back again with its side rails *d*, running upon small rollers, things are in a situation for printing another portion of the calico, when the enlarged part of the roller *a*, comes round again. Such the patentee states, is the ordinary mode, and the apparatus commonly employed in printing calico.

The new appendages which are to be adapted to this printing press, consist first, of a series of compound levers for bringing back the sliding rails *d*, *d*, and the copper-plate *c*, after each impression has been given. Secondly, a crank on the axle of *a*, with connecting rods for working the scraper *j*, that is, bringing it on to the face of the plate, for the purpose of scraping off the superfluous colour. Thirdly, the adaptation of an additional plate with its colouring apparatus, which is intended to be brought into action after the former plate, for the purpose of giving a second impression with a different colour to the portion of calico just printed, in order to complete the subject intended to be produced in once passing the calico through the press. And lastly, giving a reciprocating motion to the rollers, instead of the rotatory motion above described, when the calico is to be printed with only one colour; and also a method of applying blocks with raised patterns instead of plates, that have the designs engraved or cut below their surfaces.

To produce the retrograde movement of the sliders *d*, *d*, and plate *c*, there is a pin inserted into one of the arms of a wheel *k*, fixed on the axle of *a*, which pin acts in a long slot at the lower end of a sweep rod *l*, and after the copper-place *c*, has been carried forward by the roller *a*, and the impression given upon the calico, the pin in the said wheel brings down the rod *l*, with the beam *m*, and consequently raises the rod *n*, attached to the reverse end of the beam, which shifts the position of the double armed lever *o*, and causes the horizontal rod *p*, to draw back the rails *d*, with the copper-plate *c*, into the position shewn, ready for giving the next impression.

Connected to the said wheel, fixed on the axle of the roller *a*, there is also a crank with rods leading to the scraper *j*, which immediately after the plate has received the colour, turns over the scraper on to the face of the plate, and which, as the plate recedes, scrapes off all the superfluous colour from its surface.

When it is required to print two colours upon the calico another engraved plate *q*, is introduced, and attached to the periphery of the roller *a*, as shewn, with a ductor roller in a colour trough *r*, and scraper below. The first impression having been given to the calico by the plate *c*, a lever worked by a tappet upon the wheel *k*, acts upon one of the arms of a star-wheel fixed upon the axle of the pressing roller, and brings it and the calico back to its former situation, when as the roller *a*, proceeds in its rotation, the second plate *q*, comes up and prints the calico with its device which completes the desired pattern in the two colours.

The mode of giving the reciprocating motion to the rollers by means of a lever, instead of the rotatory motion above described, is not shewn; but may be easily conceived. It is proposed to be adopted when the calico is to be printed with one colour only, and if we understand it right, when blocks are employed instead of plates. And in this case, an endless felt is to be extended over three rollers, one of which is immersed in the colour trough, from which felt the surface of the block is to receive the colour previously to giving the impression.

[*Inrolled June,* 1826.]

To Francis Halliday, *of Ham, in the County of Surry, Esq. for his invention of certain Improvements in Machinery, to be acted upon by Steam.*

[Sealed 9th December, 1825.]

This invention is a sort of rotatory steam engine, that is, it is a wheel with vanes which are to be impelled by the force of steam in a close vessel, and being driven round by that means, communicate power to the axle, which is intended to constitute a first mover of machinery.

Plate XIV, fig. 3, is a side view of the rotatory steam engine; fig. 4, is a section of the upper part, taken transversely; *a, a,* is the frame which carries the engine, supported upon pillars; *b, b, b,* is a circular plate or rim, with arms, mounted upon an axle *c,* which turns on suitable bearings on the side rails of the frame: *d, d,* is a box formed as a quadrant of a circle, through the middle of which the rim or wheel *b,* passes. The wheel itself is not more than an inch or two thick, according to its diameter, and is made of metal smoothly polished; the sector box *d,* has considerable width, as shewn in the section, fig 4, the steam way being within it; and the slit or aperture in front of the box is cut and packed so as to fit the section of the wheel accurately, and be perfectly steam tight.

In the face of the wheel there are four or more apertures cut, into which the vanes *e*, *e*, *e*, *e*, are accurately fitted, and lay smooth with the polished surface of the wheel. These vanes are each mounted upon an axle, and are enabled to turn upon their pivots. They lay flat and coincident with the face of the wheel, when exposed to view, but when within the sector box *d*, they stand transversely in their apertures, or at right angles to the face of the wheel extending out on each side, and touching the internal surface of the box all round.

One of the vanes being supposed to have passed into the box edgewise, a tappet *f*, fixed to its axle, strikes against the horn *g*, which turns it, and the vane round into the transverse position just mentioned. The steam now admitted into the box behind the vane by the pipe *h*, exerts its elastic force, and drives the vane along the sector box, and causes the wheel to revolve. By the time that the first vane has passed nearly through the sector box, the second vane has entered, and being then turned round by its tappet, coming against the horn *g*, as before described, this vane is now thrown into the transverse position, and is acted upon by the steam in the same way as the former; the first vane having passed out of the box, and the steam being allowed to escape into the air.

Immediately upon the vane leaving the box a spring upon its axle, throws it again into its former position, coincident with the face of the wheel as shewn, or another horn may be applied to act upon the tappet on the reverse side, to force it into its position.

Under the wheel a trough *i*, *i*, is placed, which contains oil, and the wheel being partly immersed in this oil, receives the lubrication matter, which is necessary to reduce its friction against the packing of the edges and interior of the box.

This machine may of course be made of any dimensions according to the required power, and the number of the vanes may be increased or diminished, as shall be found most desirable; altering the length of the segment box accordingly.

[*Inrolled June,* 1826.]

To James Ogston, *and* James Thomas Bell, *of Davies Street, Berkley Square, in the County of Middlesex, Watch Makers, in consequence of a communication made to them by a certain Foreigner residing abroad, for certain Improvements in the construction or manufacture of Watches of different descriptions.*

[Sealed 6th January, 1826.]

The patentees state that it has long been a desideratum to discover a mode of constructing watches, which shall be much thinner than those at present in use; but the principle difficulty which presented itself against the accomplishment of this object, has been the impracticability of making a very narrow main spring capable of driving the movements of the watch for a sufficient length of time. In order to remove this difficulty the patentees have devised a method of adapting two thin springs to a watch, in place of the one main spring heretofore employed.

Plate XIV, fig. 3, shews the manner in which these two springs are proposed to be adapted. The upper plate of the watch is in this figure removed, in order to exhibit the new parts under consideration; but the general movements of the watch being the same as usual, they are but partially shewn, and need not be described; *a, a,* are very shallow boxes, each containing a narrow convolute, or as it is described spiral spring. These springs are attached to their boxes in the way that main springs are usually applied, and both are made taper, so as to compensate without the application of a fusee; *b, b,* are the tooth and pallet stop work, which are said to be made as usual, and therefore need no further description.

Round the edge of the boxes *a, a,* are rims of teeth which take into the central pinion *c,* and thus the impelling power of the two springs conjointly, which act as one main spring, is communicated to the train of wheels, and the watch is kept going.

The second feature of this invention is the contrivance by which the springs are both wound up by one operation of the key; *d,* is the square arbour to which the key is to be applied, upon this arbour a ratchet wheel is fixed shewn by dots. Two similar ratchet wheels are also fixed upon the arbours of the spring barrels *a, a,* which the teeth of the first mentioned ratchet wheel takes into. Thus it will be perceived by turning the wheel and axle *d,* the ratchets on *a, a,* will be turned also, and both the springs simultaneously wound up to tension.

The patentees state that their claim of patent right consists first in applying two barrels each with a spiral spring to the ordinary train or wheel work of a pocket watch, in place of the main spring usually applied as the impelling power; secondly, in attaching to each a ratchet wheel, and combining them with a third ratchet wheel upon the barrel arbour, by means of which pocket watches may be made much thinner than upon the ordinary construction.

[*Inrolled March*, 1826.]

To HENRY ANTHONY KOYMANS, *of Warnford Court, Throgmorton Street, in the City of London, Merchant, in consequence of Communications made to him by a Foreigner residing abroad, for certain Improvements in the construction and use of apparatus, and works, for inland navigation.*

[Sealed 16th January, 1826.]

THE subject of this patent is a self-acting flood-gate, or sluice, which opens or closes according to the height of the water at the upper level. The invention consists of a floating vessel, which is placed as a shutter against an open part of the sluice, preventing the water of the upper level at its ordinary height from being discharged, except by the over-fall of the tumbling bay, or weir, in the usual manner; but when the water of the upper level rises above its ordinary height, the floating vessel or shutter is raised, and the flood discharges itself below, through the opening in the sluice, without obstruction.

Plate XV, fig. 2, represents the section of a river, taken longitudinally, at the part where a sluice and tumbling bay, or weir, is constructed; *a*, is the upper level of the water; *b*, the lower level. An over fall or weir of the usual kind being formed across the river at *c*, the improved sluice-gate may be adapted at the side, or in the partitions into several compartments if the vessel is of great magnitude, as the larger kind of merchantmen or ships of war. When thus divided and the hatches kept closed, each compartment will form an air vessel, or confine the effects of the leakage to itself, the other parts of the ship being separated from it by the partitions.

[*Inrolled April*, 1826.]

To* Charles Louis Giroud, *of Lyons, in the Kingdom of France, at present residing in Queen Street, Soho, in the County of Middlesex, for his having invented or found out a chemical substitute for Gall Nuts, in all the different branches of the arts, or manufactures in which Gall Nuts have been accustomed, or may hereafter be used.

[Sealed 8th November, 1825.]

This substitute for gall-nuts is an extract from the shell of the chesnut, and also from the wood, and sap of the chesnut-tree. The extract is denominated ***Damajavag***, and the mode of preparing it is by reducing the chesnut shell into small pieces, and boiling them in water.

One hundred weight of the shells of chesnuts, broken into small pieces, is to be immersed in about a hundred and eighty, or two hundred quarts of water, in a vessel of copper, or any other material except iron ; and after having been allowed to soak in this water for about twelve hours, the material is then to be boiled for about three hours, in order to obtain the extract. The wood of the chesnut tree may be cut into small pieces, or shaved thin, and treated in the same way.

The extract is now to be drawn off from the boiler, and filtered through a fine sieve or cloth, after which the water must be evaporated from it, until the extract is reduced to the consistency of paste. It may now be cut into cakes of any convenient size, and dried in an oven of low temperature, and when hard, may be packed for sale, and used for any of the purposes in the arts, to which gall-nuts have been heretofore applied. The quantity of damajavag obtained from the above will be about eight or ten pounds.

In using this damavajag it is only necessary to pound or otherwise reduce it to powder, when it may be mixed with other ingredients as pulverised gall-nuts.

The same chemical properties belong to the sap of the chesnut tree, which may be extracted by tapping the trunk, and when so obtained may be employed for the same purpose as the gallnuts.

[*Inrolled January,* 1826.]

To JOSEPH SCHALLER, *of Regent Street, in the County of Middlesex, Ladies Shoe Maker, for his Invention of certain Improvements in the construction or manufacture of Clogs, Pattens, or substitutes for the same.*

[Sealed 6th May, 1826.]

THIS invention is principally applicable to the French flexible clogs, made of several pieces with joints, enabling them to bend with the action of the foot in walking. The improvement consists in a mode of enabling the clog to be expanded or contracted, so as to fit different sized shoes.

Plate XV, fig. 6, represents the sole of the clogs cut in two at the narrow part. A recess is formed towards the heel to receive a sliding rack *a*, fixed to the sole *b*, which rack is held by a spring catch *c*. When it is required to elongate or shorten the clog, the spring catch *c*, is drawn back by the thumb and finger, and placed in another notch of the rack, which holds it steadily. These parts are all intended to be covered by a plate in which a small slot is made, allowing the head of the spring catch *c*, to pass through, that the elongation or contraction may be effected by the wearer with facility when required.

Instead of the rack and spring catch, the patentee proposes sometimes to employ a sliding piece *a*; fig. 7, with holes in it, through one of which, and through a hole in the covering plate, a pin may be passed for the purpose of keeping the clogs elongated. Or instead of the rack or the slider, a ratchet and click, as at fig. 8, may be applied to the same purpose.

For the purpose of enlarging the heel part of the clogs, a semi-circular piece of metal *d*, fig. 9, is affixed to the back part of the heel, which expands by its own force. In order to bring the sides of this heel piece together, a small rod with a screw and nut passing through the heel may be employed, but the mode which is particularly recommended is the application of the ratchet and click, as exhibited at fig. 8, which when the sides of the heel piece are pressed inwards, holds them at the required width.

The last feature is a sliding clasp shewn at fig. 10, the lower part *a*, is to be made fast to the clog, the upper part *b*, to the strap, which crosses the instep; *c*, is a nob affixed to the piece *a*, and being passed through the circular hole in *b*, slides in the central slot, by which means the clasp may be lengthened or contracted, and is held in any situation by the pressure of a spring between the two plates of the clasp, or spring, to which the nob *c*, may be affixed.

[*Inrolled November*, 1826.]

To Henry Richardson Fanshaw, *of Addle Street, in the City of London, Silk Embosser, for his Invention of an Improved Winding Machine.*

[Sealed 13th June, 1826.]

The filaments of silk drawn from a reel in the operation of winding on to bobbins, being extremely slender and easily broken, the patentee has proposed a slight variation in the construction of the winding machine, by which in the event of the filament of silk catching or running into a knot, as it is drawn off the reel, the parts may give way, and prevent the silk from breaking.

Plate XV, fig. 5, is a side view of the machine; *a*, is the reel or swift with the silk *b*, *b*, *b*, extending upon it, and from which it is now to be drawn off, and wound on to the bobbin *c*. The swift in this machine is not intended to be driven round, but to be loosely mounted upon its axle; *d*, is a pulley carrying an arm *e*, as a sort of flyer, which being made to revolve, unwinds the silk from the stationary reel. From the flyer *e*, the filament of silk passes through an eye fixed nearly opposite the centre of the reel, and from thence it proceeds over the guide-roller *f*, and eye *g*, to the bobbin *c*.

The bobbin is turned by the friction of its contact with the surface of the roller *g*, upon the side of which there is a pulley *i*; and an endless band passing from it to the pulley *d*, causes them to turn together, when either of the pullies are put in motion.

The pulley *d*, being made to revolve, the arm or flyer *e*, passes swiftly round, and in its rotation, draws off the filament of silk from the reel; the friction roller *h*, being at the same time turned, causes the bobbin *c*, to revolve, and to wind on the silk as fast as it is delivered by the flyer from the reel.

It will now be perceived, that in the event of the silk catching, or running up into a knot, that the tension will cause the rotation of the bobbin *c*, to cease, or the reel may move round a little way to relieve it; and the arm of the flyer *e*, being made of wire or some other elastic material, will, as it revolves, tremble or vibrate so as to assist in relieving any entanglement.

The particular arrangement of the parts of the winding machine, are not necessarily confined to the form shewn in the figure, but under circumstances must be varied; the revolving flyer, however, as described above, being the essential feature of novelty, is claimed by the patentee, in whatever way it may be adapted to a machine for winding silk.

[*Inrolled December*, 1826.]

To William Fenner, *of Bushell-Rents, Wapping, in the County of Middlesex. for his Invention of Improvements in Machinery, or Apparatus for Curing Smokey, and Cleansing Foul Chimnies.*

[Sealed 6th May, 1826.]

This invention is a serpentine tube to be placed at the top of a chimney, in order to increase the drift. It may be enclosed within the brick-work, or raised above it, and when enclosed, a number of bolts are passed through the brick-work, by which the protuberant parts of the tube may occasionally be tapped on the outside, in order to disturb the soot that may have adhered, and cause it to fall down to the lower part of the chimney.

Plate XVI, fig. 5, shews a section of the upper part of chimney, with the serpentine tube *a, a, a,* fixed within it. The tube is proposed to be constructed of sheet copper, to avoid corrosion, and, for convenience, may be made in several pieces, fastened together by rivets. Or instead of riveting the several pieces or lengths of the tube together, they may be inserted in sockets, and secured by a sort of bayonet fastening.

The manner of fixing the tube in the chimney, is by forming a flange round the bottom edge, which rests upon the brick-work, and confining it at top by a metal plate or flat tiles ; *b, b. b,* are the bolts or tappers, mounted in sockets, and passed through the brick-work: when the tube has become foul by the adhesion of soot to its inner surface, these bolts may be gently struck by a hammer so as to tap the trunk, and cause the soot to fall to the bottom.

The same form of trunk may be placed above the chimney on the outside, as a cap, which being properly secured, will answer the same purpose as when enclosed within the brick-work, producing a powerful draft in the flue, and completely prevent the chimney from smoking.

The patentee states, that there will be no objection to setting fire to the soot in this tube, as it will not be attended with any danger, and may be the most effectual mode of cleaning it.

[*Inrolled November*, 1826.]

To John Rist, *of Chard, in the County of Somerset, Lace Manufacturer, for his Invention of certain Improvements in Machinery, for making net, commonly called Bobbin or Twist Net.*

[Sealed 4th October, 1826.]

The machines to which these improvements are proposed to be adapted, are those employed for the manufacture of bobbin net lace, upon what is called the *double tier circular bolt principle,* intended to be driven by the power of steam or water. The invention is a mode of working the fetcher bars, that drive the bobbins on the under side of the circular bolts, which is done by compound levers actuated by a rotatory cam.

Plate XVI, fig. 4, is the section of a lace machine upon the double tier circular bolt principle, with the improvements adapted thereto; *a, a,* are the bobbin carriages; *b, b,* the pusher bars which drive the carriages from side to side as the triangle frame *c,* vibrates, by the agency of levers, and a rotatory cam wheel not shewn in the figure. This is the ordinary way of pushing the bobbin carriages to and fro in the machine, upon the circular bolts *d, d.*

The new parts are the double armed levers *e, e,* with the rods *f, f,* connecting the ends of the levers to the fetcher bars *g, g*; and the rotatory cam wheel *h,* upon the periphery of which the friction rollers at the extremities of the levers *e, e,* work.

The main shaft *i,* being made to revolve by the power of a steam-engine, or any other suitable means, the inequalities upon the periphery of the cam wheel *h,* cause the levers *e, e,* to vibrate, and to move the fetcher bars *g, g,* to and fro upon their pivots, mounted in brackets, and fixed to the frame-work, the edges of which bars striking against the ears on the lower parts of the bobbin carriages, slide them along the circular bolts *d,* and effect that part of their movements, which the pushers *b, b,* are not able to perform.

The general movements of lace machinery upon the double tier circular bolt principle, having been long known, it is not necessary to explain this machine further, as the only improvement claimed is the mode of actuating the fetcher bars, by means of the levers, and cam wheel described above.

[*Inrolled December,* 1826.]

For the description of a complete lace machine, see Crowder's patent, Vol. XI, page 57, and Plate III; and Lingford's patent, Vol. X, page 180, and Plate XI.

To William Chapman, *of the Town and County of Newcastle-upon-Tyne, Civil Engineer, for his Invention of certain Improved Machinery for loading or unloading Ships, Vessels, or Craft.*

[Sealed 7th February, 1826.]

The subjects of this patent are first, an improved apparatus for discharging coals from the pit waggon into the lighters, or other vessels, by which it is to be transported; and secondly, an improved apparatus for drawing the sand or other matters employed as ballast from the vessels, and bringing it to land.

The usual practice in loading colliers at Shields, and in that neighbourhood, is to bring the coal from the pit in waggons, running upon rail roads to the waters edge, and there to lower the waggons upon a suspended stage or cradle by means of a swinging frame, down over the vessel floating in the river; when a flap in the bottom of the waggon being opened, the coal immediately falls through into the hold of the lighter or ship; and the empty waggon is drawn up again, sometimes by the weight of another loaded waggon in its decent. Upon the apparatus, by which this operation has been usually performed, the patentee has engrafted his improvements, which are shown in Plate XVI, fig. 6.

This figure represents a section of the ground near the waters edge: *a*, is a waggon laden with coal; running upon a rail-way from the pit; *b*, is the vessel floating on the water into which the coal is to be delivered. The waggon having arrived at the brink of the declivity, it is pushed forward on to a platform, cradle, or stage *c*, ready to be lowered; *d*, is a windlass round which the chain is coiled that is to support the loaded waggon in its descent; *e*, is a fly wheel fixed to the axle of the windlass, and to the periphery of which a break is applied, for the purpose of retarding the descent of the loaded waggon, or of stopping it if necessary; *f*, is one of two parallel rails laid upon an inclination; and supported by strong upright posts, or standards; *g*, is a running wheel, of which there are two attached to an axle, that supports the stage *c*, with the loaded waggon.

The break being removed from the periphery of the fly wheel *e*, the stage with the loaded waggon immediately descends the declivity, by the wheels and axle *g*, running down the parallel rails of the inclined plane *f*, and when at the end, the wheels *g*, fall into forks *h*, at the upper ends of the shears or levers *i*, which now support the cradle with the loaded waggon and conduct it down to the vessel as shown by dots: the axle of *g*, being all the time held fast by the chains from the windlass *d*.

The weight of the loaded waggon, and its cradle, increasing in effect as it descends, by the levers *i*, approaching the horizontal position, it becomes necessary to attach a balance to the levers or shears *i*, which is done by means of a chain passed over a pulley *k*, having several weights appended to it. The weights are attached to the chain at small distances apart, in order that they may rise in succession, and compensate for the increasing weight of the descending waggon, as beforesaid; or the same effect may be produced by a pendulous weight, as shown by dots at *l*.

When the cradle with the waggon has reached the position shown by dots, the flap at the under part of the waggon is thrown open, and the load of coal allowed to descend into the vessel. The stage with the empty waggon is then drawn up again by the fly wheel *e*, turning the reverse way, which causes the windlass *d*, to wind in the chain, and consequently draw up the waggon: this is sometimes done by the counter-weight of another loaded waggon descending from an adjoining railway, but it is most convenient to draw up the cradle with the waggon by the power of a steam engine applied to the axle of the windlass *d*.

In the ordinary apparatus, two sets of men are employed, one set to place and adjust the waggon upon the cradle, and another to let off the descending shears; but by the contrivance above described, one set of men are sufficient for both operations.

The second object of the patentee is to raise sand and other matter used as ballast, from the vessels floating in the river: which is done by a peculiarly constructed carriage, running up and down an inclined plate, in a similar way to that above described. The improvement consists in placing an elastic wedge, or stop, on a platform at the end of the inclined plane, at the back of which there is a spring formed like the bowed or grasshopper springs used to support stage coaches: by this contrivance the carriage which conveys the box intended to receive the ballast, in sliding rapidly down the inclined plane, is stopped at the end, without experiencing any ill effects from the concussion.

There is also connected to this elastic wedge or stop, certain catches, by one of which, the carriages or truck is held fast by a spring latch affixed to the wedge, passing into a mortice in the carriage frame; and the end of a lever also connected to an elastic wedge, is at the same time made to fall into the teeth of a ratchet wheel, upon the axle of the windlass that suspends the box from the truck, in order to hold it steadily. When the labourers in the hold of the vessel are ready to receive the box, they pull a cord, which raises the pall lever from the ratchet wheel of the windlass, and the box decends, which being filled with the sand or other materials, to be removed from the vessel, is then drawn up again, and by means of its truck, passed along the railway, to the place where the material is intended to be deposited.

The specification concludes by saying that the novel features claimed under this patent are, first, the manner of attaching the cradle to the shears, for the purpose of lowering the waggon of coal; second, the elevated inclined rail-way, supported upon posts or upright standards, which may be placed at any required angle, and may be bent to any other figure but that of a plane, if it should be found necessary; thirdly, the axle from which the cradle with the waggon is suspended, and the truck wheels attached to its extremities, intended to run upon the inclined railway; fourthly, the forks at the upper ends of the levers or shears which receive the truck wheels, and enable the cradle to be lowered with perfect safety; fifthly, the general arrangement of the whole. And as applies to the apparatus for the removal of ballast from the hold of the vessel, the elastic spring wedge or stop upon the platform is claimed, and also the ratchet and windlass applied to the truck, or carriage which conveys the box up and down the inclined plain.

[*Inrolled April,* 1826.]

To Dominique Pierre Deurbroueq, *of Leicester-square, in the County of Middlesex, Esq. in consequence of a communication made to him by a Foreigner residing abroad, for an Invention of an Apparatus adapted to Cool Wort, or Wash, previous to its being set to undergo the process of Distillation.*

[Sealed 23rd May, 1826.]

This refrigerator is made in the form of a long cylindrical vessel, the external surface of which is to be coated with wet cloth, and water constantly poured upon it, to assist in evaporating the heat, transmitted from the hot wort passed through the vessel.

The manner of constructing this refrigerator is shewn in Plate XVI. Fig. 1, is an external representation of the apparatus; fig. 2, a section of a portion near the end of the same, exhibiting the internal parts. Cold water is introduced at the pipe *a*, which leads to a hollow cylindrical chamber *b*, *b*, passing entirely round, and along the interior of the vessel, by which chamber the water is carried through the refrigerator, and discharged at the pipe *c*. Hot wort or other fluid, the temperature of which is intended to be reduced, is admitted into the vessel at the pipe *d*, by which it passes to the chamber *e*, and thence flows in a very thin strata, along the narrow channels *f*, *f*, between the water-chamber *b*, and the outer case. The consequence of thus separating the wort or other hot fluid, into a strata so extremely thin, is, that it readily parts with its caloric, transmitting the heat to the water, and passes off at the pipe *g*, very considerably reduced in temperature, if not quite cold.

Deurbroucq's Refrigerator

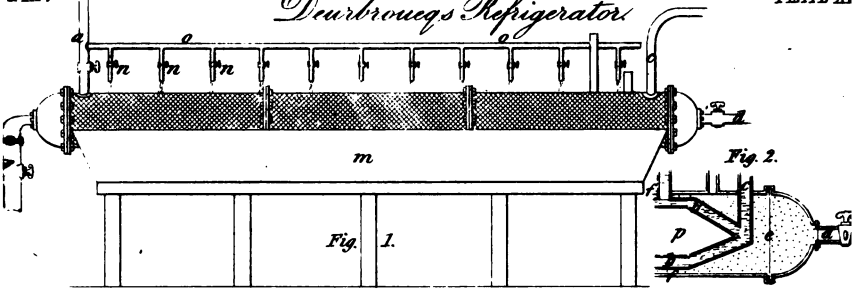

Fig. 1.

Fig. 2.

Tompson's Impd. tubes & bedstead.

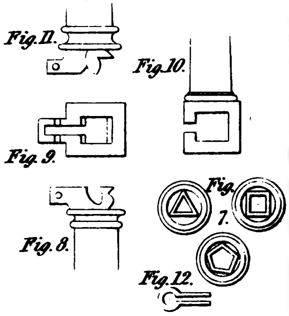

Fig. 11.

Fig. 10.

Fig. 9.

Fig. 8.

Fig. 7.

Fig. 12.

Fenner's Impd. Chimney top.

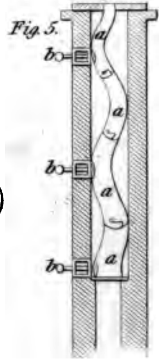

Fig. 5.

Rist's Lace Machine

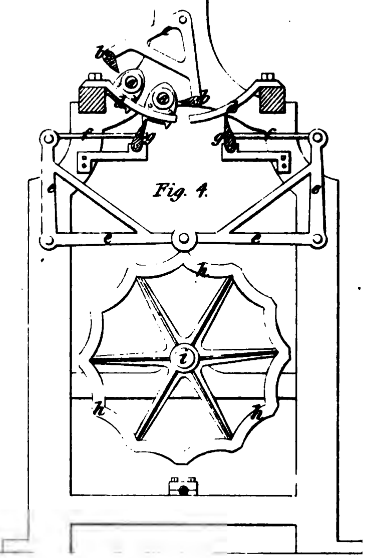

Fig. 4.

Chapman's Impd. apparatus for loading Colliers.

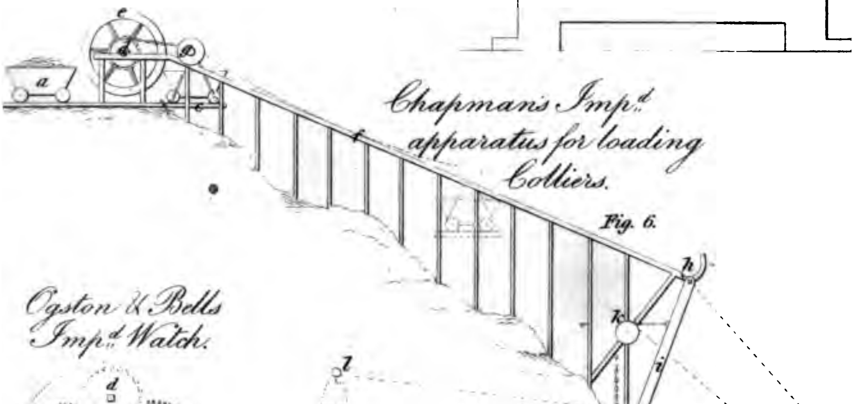

Fig. 6.

Ogston & Bell's Impd. Watch.

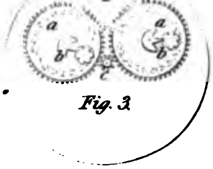

Fig. 3.

In order to increase the refrigeratory power of the apparatus, the sheet of metal which forms the external part of the water-chamber, next to the wort, is fluted or indented, so as to enlarge its surface, and thereby cause the wort, in its passage along the channel *f*, to come in contact with a more extended surface of the cooling medium than it could do if the passage was smooth; and which inequalities of surface will also agitate the wort as it flows, and thereby promote its cooling.

The external part of the vessel, which constitutes the outer surface of the channel that the wort passes through, is partly immersed in a trough *m*, and is coated with cloth. Above this vessel a series of small jets *n*, *n*, *n*, leading from a pipe *o*, constantly discharge cold water on to the cloth covering the refrigerator, and thus cause the heat to be withdrawn externally, and evaporated.

The temperature of the wort discharged may be raised, and regulated, by partially closing the cock at *g*, so as to prevent the wort from passing too rapidly through the channel. And the air, which may become heated in the inner chamber *p*, by the passage of the water, is allowed to escape by vent pipes.

In regulating the temperature of the wort, a thermometeris to be applied to the stream at *g*, as it flows out, and by closing or opening the cock a little, the temperature will be raised or lowered.

[*Inrolled November*, 1826.]

To JOHN THOMAS THOMPSON, *of Long Acre, in the Parish of St. Martin in the Fields, and County of Middlesex, Camp Equipage Maker, for his Invention of certain Improvements in making or manufacturing Metallic Tubes, whereby strength and lightness are obtained, and for applying them with various other Improvements to the construction of the Metallic Tube, and other Bedsteads.*

[Sealed 17th August, 1826.]

IN making metallic tubes such as the brass pillars, and rods for bedsteads, the patentee proposes to insert within them, tubes of iron, for the purpose of giving stability to the outer tube, which is thin and of course weak. He further intends to strengthen these tubes by placing stretchers along the interior, made in a triangular, square, pentagonal, or any other poligonal form.

Plate XVI, figs. 7, are sections taken across these tubes, shewing the inner tube, and the stretchers placed as supports in the way above described. These tubes may be applied as the upright pillars or horizontal rods of metallic bedsteads, or to any other purposes for which metal rods may be required, as they will be found to be more firm than solid rod, and much lighter.

A second feature of the invention is a new method of forming the joints, or connecting pieces at the ends of the rods, by which they may be firmly united together as in making bedsteads. Fig. 8, is a portion of the lower part of a bed-post: fig. 9, the end of one of the side horizontal rails; fig. 10, the same of the foot-rail; and fig. 11, a portion of the upper part of the bed-post. The pieces are so shaped with wedges and recesses, that when put together they will fit exactly, and by the introduction of a pin through the small holes, which will be coincident when the parts are combined, the joint will be locked, and the whole made fast.

It is proposed in order to render metallic bedsteads capable of packing into a small compass, that the horizontal rails shall be made in several pieces, sliding one within the other like a telescope, with a leg to support each piece. In this case, however, the tubes cannot be strengthened by the internal braces, but they may be made with double tubes, that is, a tube of iron within that of brass. The tube is also applicable to other articles of furniture, which may be required to expand or contract to suit particular circumstances.

To facilitate the attachment of the sacking to the bedstead, it is proposed to fix to the sacking a series of rings all round its edge, like the ring and clasp shewn at fig. 12. A suitable number of these rings being made fast to the sacking, by stiching through the clasp, the sacking may be readily extended, and attached to the bedstead by rods passed through the rings, which rods are to be fixed to the horizontal rails by clumps and screws.

The tester of the bedstead may be made by similar rods with locking joints, and they may be ornamented with knobs or vases agreeable to the taste of the manufacturer. The bedsteads are proposed to have castors attached to them, with friction rollers running round horizontally, of the kind described in Harcourt's Patent, see our first vol. page 333.

[*Inrolled October*, 1826.]

To Charles Whitlaw, *of Bayswater Terrace, Paddington, in the County of Middlesex, Medical Botanist, for his Invention of an Improvement or Improvements in administering Medicines by the agency of Steam or Vapour.*

[Sealed 18th February, 1826.]

The patentee considers that remedies against every disease to which the human body is liable, are to be found in the leaves, flowers, roots, and seeds of vegetation ; and he proposes to apply the extracts of these herbs medicinally, for the cure of every disorder, by introducing them into the body in the way of vapour. To effect this object therefore the aid of steam is called into operation, and the vegetables being submitted to the action of steam, their virtues are extracted, and mixed with the vapour, which is brought into contact with the human body in a vapour bath.

The first thing proposed in connection with this improved method of administering medicine by steam, is to gather all the different kinds of herbs, which may be wanted in their perfect state of growth, and to dry them in the shade as much as possible, that none of the odoriferous parts may be driven off while the aqueous parts are evaporating. And for this purpose it is recommended that the herbs when spread out to dry may be covered by a cloth, so as to exclude the light.

When sufficiently dry the herbs are to be packed in paper, in a wooden or other suitable vessel, and pressed very closely by any mechanical means, the ordinary screw press will answer the purpose. Such herbs as are oleaginous, must not be further compressed, when the oil begins to shew itself upon the paper. These herbs may then be conveyed to any distance, as from America to Europe, for medicinal uses; or where they can be procured fresh in most cases that would be prefered.

The herbs to be employed for impregnating the vapour about to be administered for the cure of any disease, are to be put into a vessel with many holes in its cover, like a colander. A tube opening into the side of this herb vessel, is to conduct steam to the herbs, by means of a pipe from a boiler at any convenient distance, and the herbs thus suffering a partial decoction, their virtues are taken up by the steam, and carried off through the perforations in the top of the vessel.

The bath in which this medicinal vapour is to be administered, may be constructed as a tent, with curtains to enclose the patient, the floor of which tent is to be perforated or grated to and from the lid of a box, in the interior of which box the herb vessel must be placed; and the steam being thrown upon the herbs in the manner described, the impregnated vapour will rise from the vessel, and passing through the grating, fill the interior of the tent in which the patient is proposed to be seated, in a caned bottomed chair, or upon a slight stool.

In this way the virtues of any vegetable substances which are antidotes to the malady are proposed to be extracted, and communicated to a diseased person in the form of vapour, which being absorbed by the skin of the patient, enters the body, and effects the desired cure.

The boiler proposed to be employed for generating the steam, is recommended to be of an elliptical form with the furnace in the interior, and the water surrounding it on all sides. Such a boiler may be made portable, as one of small dimensions will be sufficient for the purposes of the above operation, and may be placed near the chimney in the room of the sick person.

[*Inrolled August*, 1826.]

Novel Inventions.

Steam Coach.

THE observations which we felt called upon to make in our last number, respecting the practicability of driving a stage-coach by the power of steam, have, as might be expected, brought upon us considerable animadversion; (indeed, we may say abuse,) but which has not in the slightest degree, shook the confidence which we felt, and still feel, that our view of the subject, as then expressed, is perfectly correct.

"Sagacious writer!" says one. "Let him take a walk to the Regent's Park," says another. And what then? Why, "shew his eyes, and grieve his heart," there IS a steam coach in existence.

With great submission to our *sagacious* critics, and other *sapient* journalists, we dispute upon terms; what they call a steam coach, we do not call a steam coach; but merely an experimental loco-motive engine, with the body of a coach certainly now attached to it, but, in our opinion, with scarcely any of the requisites which a steam coach must have before it can possibly perform a journey.

That this, said to be, steam coach frequently takes an excursion in the neighbourhood of the Regent's Park, we are perfectly aware of, but a few minutes observation of its performance will convince any one, however little acquainted with steam engines, that there are some things wanting before this machine can be called a steam coach.

Without entering into any investigation of its defects, or at present pointing out certain essentials which it does not possess, we have no hesitation in again declaring it not to be a steam coach in our sense of the word, and we shall persist in that opinion, until it can be made to run *one stage of five miles in the course of an hour without stopping;* then we will acknowledge it to be a steam coach; but at present, there does not appear to be any probability of this, or any other of the projected loco-motive vehicles performing even so very moderate a feat. Therefore, we again assure our readers, that there is not at present in existence, nor do we believe there is in any tolerable state of progress, a steam coach likely to be applied to public survice.

Among our numerous correspondents upon this subject, one gentleman, well known in the inventive world, tells us that he perfectly agrees with us in opinion, that steam coaches are impracticable, but that he has a something coming forward which will supersede their necessity —he is about to complete a STEAM HORSE.

Face Guard for Smelters.

THE sum of five Guineas has been presented by the Society of Arts, to Mr. J. CALLAGHAN, Carlisle-lane, Lambeth, for his Face-guard for Smelters; one of which has been placed in the Society's Repository.

Mr. Callaghan's guard is intended to preserve the face, and particularly the eyes, of smiths, founders, stokers, and others, from being injured either by the heat of the furnace, or of red-hot or melted metal, or by fragments of metal dispersed on all sides, in the action of hammering.

The guard is of two forms, either a veil, as it were, of iron wire gauze of a curved form, and fastened by a hinge to the front part of the hat, or a mask, more or less complete, with the eye-holes covered with wire gauze.

There is not much novelty in the invention; spectacles of wire gauze are already in use, and eye-guards, fastened by a band round the head, have been employed by persons engaged in breaking stones for the roads.

It does not, however, appear that founders, stokers, and others, whose eyes are much exposed to radiant heat from burning fuel or melted metal, are in the habit of using any precaution to protect ther eyes. It appears from the concurring testimony of engine-makers, master-founders, and others, members of the Society, that the eyes of persons in their employ are often seriously injured from the above-mentioned causes. J. Callaghan is himself a workmen, and the Society have rewarded him in hopes that his fellow-labourers may be induced to avail themselves of the invention of one of their comrades, though they would probably neglect the very same contrivance, if offered to them from any other quarter.

CERTIFICATE.

This is to certify that I have had Joseph Callaghan's face-guard tried at the forge, and at the air furnace in my father's manufactory, in one instance in forging a spindle of eleven hundred weight, and in the other, in dipping metal from the air furnace; and on both occasions the men expressed their surprise at the trifling heat which they felt upon their faces; and I do not hesitate to assert, if the description of men above-mentioned would use these guards at an early stage of their profession, they would have their eye-sight wholly unimpaired for many years.

CHARLES COLLINGE.

Bridge-road, Lambeth.

St. Helena Silk.

A specimen of the raw silk produced at the island to St. Helena, has arrived in England. It is the first perfect one, and is considered to be of a very fine quality. It is entirely free from any disagreeable odour, which speaks much in its favour. In last August the number of worms in progress was 218,000, which were in a very healthy condition, and expected to spin in the course of a few days. The mulberry trees thrive remarkably well, and have a very luxuriant appearance.

New Patents Sealed in 1828.

To William Gossage, of Leamington Priors, in the county of Warwick, Chemist, for his having invented or found out certain improvements in the construction of cocks, for the passage of fluids—Sealed 2nd January—6 months for Inrolment.

To Thomas Botfield, of Hopton-court, in the county of Salop, coal and iron master, for his invention of certain improvements in making iron, or in the method or methods of smelting and making of iron—2nd January—2 months.

To James Hall, junior, of Ordsall, near Manchester, in the county of Lancaster, dyer, for his invention of certain improvements in dying piece goods by machinery—2nd January—2 months.

To Joseph Clisild Daniell, of Stoke, in the county of Wilts, clothier, for his invention of certain improvements in dressing cloths, and in the machinery applicable for that purpose—2nd January—6 months.

To William Morley, of the town and county of Nottingham, lace manufacturer, for his having invented or found out certain improvements in, and additions to, certain machines or machinery now in use for making lace, or net commonly called bobbin or twist net lace—9th January—6 months.

To James Andrew Hunt Grubbe, of Stanton-Saint-Bernard, in the county of Wilts, clerk, for his having invented a transmitting heat wall, for the ripening of fruit—9th January—6 months.

To James Gilbertson, of Hertford, in the county of Hertford, Grocer, for his having invented an improvement, or improvements in the construction of furnaces, by which they consume their own smoke—15th January—2 months.

To Charles Hooper, of Spring Gardens, in the parish of Marston Bigott, in the county of Somerset, shear-grinder, for his having invented a new, valuable, useful, and improved machine for shearing, and cropping woollen and other cloths—15th January—2 months.

To John Evans the younger, of Moreton mills, near Wallingford, in the county of Berks, paper maker, for his having invented certain improvements on steam engines—15th January—6 months.

To Joseph Blades, of Clapham, in the county of Surry, gentleman, in consequence of a communication made to him by a certain foreigner residing abroad, for his new invented improvements in the water proof stiffening for hats—15th January—6 months.

To William Newton, of Chancery-lane, in the parish of Saint Andrew, Holborn, and county of Middlesex, civil engineer, and mechanical draftsman, in consequence of a communication made to him by a foreigner residing abroad, for an improved surgical chair-bed, with various appendages designed for useful purposes—15th January—6 months.

To George Daniel Harris, of Field-place, near Stroud, in the county of Gloucester, clothier, for his having invented or discovered certain improvements in dressing and preparing woollen yarns, and in cleansing, dressing, and finishing woollen cloths, and other fabrics, and in the apparatus for performing the same—15th January—6 months.

To James Falconer Atlee, of Prospect-place, Deptford, in the county of Kent, gentleman, for his invention of certain improvements on bands or hoops for securing made and other masts, bowsprits, and yards, and applicable to other purposes—15th January—6 months.

To William Erskine Cochrane, of Regent-street, in the county of Middlesex, esq. for his new invented improvements in certain apparatus for cooling, and other purposes —15th January—6 months.

To Joshua Taylor Beale, of Church-lane, Whitechapel, in the county of Middlesex, engineer; and George Richardson Porter, of Old Broad-street, in the city of London, merchant, for their new invented mode of communicating heat for various purposes—19th January—6 months.

To William Percival, of Knightsbridge, in the county of Middlesex, veterinary surgeon, for his new invented improvements in the construction and application of shoes without nails to the feet of horses, and certain other animals—19th January—6 months.

To George Jackson, of Saint Andrew, in the city of Dublin, attorney-at-law, for his invention of certain improvements in machinery for propelling boats and other vessels, which improvements are also applicable to water-wheels and other purposes—19th January—6 months.

METEOROLOGICAL JOURNAL FOR DECEMBER, 1827, AND JANUARY, 1828.

1827	Thermo.		Barometer.		Wind.	Weather.
	Max	Min.	Morn.	Even.		
DEC.						
24	55	42	29,60	29,84	S W—N W	Rain ·25—fair aftern. wind
25	47	40	30,08	30,17	W	Cloudy—fair
26	50	45	30,24	30,18	W—S W.	Ditto—damp
27	52	42	30,18	30,37	W	Ditto—ditto
28	41	32	30,45	30,38	W—N W	Fair—fog
29	34	26	30,33	30,22	N	Frost—ditto
30	40	33	30,15	30,02	E—S E	Cloudy—ditto
31	42	36	29,74	29,52	S E	Ditto—rain ·13
JAN						
1	46	38	29,26	29,64	S—S W—N W	Fog—rain—·50
2	49	34	29,72	29,28	S W	Cloudy—do. ·25
3	49	35	29,28	29,61	S W—W—N W	Ditto—fair—wind
4	41	34	29,64	29,46	W—S W	Ditto—rain ·30—wind
5	36	34	29,46	29,50	W—N W	Sun and rain ·09—fog
6	38	33	29,56	29,74	N E	Cloudy—damp
7	36	33	29,82	29,73	E—S E	Ditto—wind
8	38	33	29,73	29,83	S E—S—N E	Ditto—fair
9	32	28	29,84	29,67	S E—S—N E	Frost—fair
10	31	27	29,58	29,49	N E	Ditto—slight snow
11	35	25	29,40	29,49	N E—E—S E	Snow—thaw
12	40	34	29,60	29,35	S E—S	Thick fog—heavy rain, 1 inch.
13	46	40	29,29	29,36	S W—W—N W	Stormy—hign wind—rain ·48
14	41	36	29,42	29,36	W—N E	Cloudy—damp
15	36	31	29,37	29,42	N—N E	Ditto—snow
16	36	32	29,59	29,72	E—S E	Thaw
17	48	35	29,75	29,85	E—S E	Rain ·57
18	55	47	29,88	29,95	S—S W	Ditto ·43
19	55	46	29,97	29,50	S W	Fair—clear
20	55	43	30,07	30,07	S W—S	Ditto—ditto
21	51	43	30,03	29.93	S W	Ditto—ditto
22	53	44	29,87	29,50	S W—NW	Ditto—cloudy—damp
23	53	44	30,03	30,11	W—N W	Fair—clear—wind
24	53	41	30.11	30,05	S W	Cloudy—damp

Hitchin. **WATSON PERKS.**

D.	H.	M.	S.	
1	0	0	0	Clock before the ☉ 13' 52"
1	11	0	0	☾ in conj. with ο in Leo
1	21	0	0	☾ in conj. with π in Leo
2	17	12	13	♃'s 1st Satt. will immerge
3	7	0	0	♂ in conj. with λ in Libra
3	23	0	0	☾ in conj. with υ in Leo.
4	23	0	0	♀ in conj. with φ in Aquar.
5	0	0	0	Clock before the ☉ 14' 18"
6	5	0	0	☿ in conj. with γ in Capri
7	5	0	0	☿ in conj. with in Capri
7	6	0	0	☾ in conj with λ in Virgo
7	20	0	0	☾ in conj. with 2 α in Libra
7	22	0	0	☾ in conj. with ♄ long 14° in Libra ☾ lat. 1° 24' N. ♃'s lat. 1° 14' N. diff. lat. 10'
8	7	55	0	☾ in □ last quarter
8	11	0	0	♂ in conj. with 1 β in Scorpio
8	12	0	0	♂ in conj with 2 β in Scorpio
8	14	0	0	☾ in conj with 4 ζ in Libra
8	23	0	0	☾ in conj. with ϑ in Libra
9	6	0	0	☾ in conj. with γ in Scorpio
10	0	0	0	Clock before the ☉ 14 34"
11	7	0	0	♂ in conj. with γ in Scorpio

D.	H.	M.	S.	
11	13	33	57	♄'s first satt. will immerge
13	8	0	0	☾ in conj. with β in Capri.
14	22	45	0	Ecliptic conjunction or ● New Moon.
15	0	0	0	Clock before the ☉ 14' 30"
16	20	0	0	☿ in conj. with λ in Aquar.
18	9	0	0	☽ in conj. with ε in Pisces
18	14	0	0	☽ in conj. with ζ in Pisces
18	15	27	25	♃'s first satt. will immerge
19	2	37	0	☉ enters Pisces
20	0	0	0	Clock before the ☉ 14' 9"
20	6	0	0	☿ in conj. with φ in Aquar.
22	2	38	0	☽ in □ first quarter
22	6	0	0	☽ in conj. with 1 δ in Taurus
22	6	0	0	☽ in conj. with 2 δ in Taurus
22	8	0	0	☽ in conj. with ε in Taurus
25	0	0	0	Clock before the ☉ 13' 29"
27	19	0	0	☽ in conj. with 1 α in Cancer
27	20	0	0	☽ in conj. with 2 α in Cancer
28	0	0	0	Stationary.
28	18	0	0	☽ in conj. with ο in Leo.
29	3	0	0	☽ in conj. with π in Leo.

The waxing moon ☽—the waning moon ☾.

Rotherhithe. J. LEWTHWAITE

METEOROLOGICAL JOURNAL, FOR DECEMBER AND JANUARY, 1827.

1827.	Thermo.		Barometer.		Rain in inches.	1828.	Thermo.		Barometer.		Rain in inches.
	Hig.	Low	High.	Low.			Hig.	Low.	High.	Low	
DEC.						JAN					
26	52	42	30,36	30,35		11	37	25	29,53	29,51	
27	50	44	30,42	30,32		12	44	29	29,71	29,50	
28	42	31	30,58	30,51		13	47	39	29,51	29,16	,675
29	37	27,5	39,49	30,36		14	43	35	29,54	29,50	,1
30	42	29	30,26	30.24		15	37	32	29,76	29,61	,175
31	47	30	29,84	29.64		16	38	31,	29,72	29,62	,35
JAN.						17	49	33	29,96	29,86	,325
1	47	40	29,56	29.38	,125	18	53	42	30,12	30,03	,3
2	48	32	29,83	29,52	55	19	55	41	30,19	30,16	
3	45	37	29,69	29 36	'3	20	50	39,5	30,24	30,17	,025
4	43	30,5	29,81	29,57		21	47	34	30,19	30,16	
5	35	30	29,58	29,56	'475	22	56	40	30,15	30,04	
6	37	30	29,86	29,73	'1	23	53	38	30,30	30,15	,025
7	36	29,5	29,88	29,86	,025	24	50	40	30,30	30,26	
8	37	32	29,92	29,82		25	52	47	30,15	30,06	
9	37	30,5	29,96	29,93							
10	33	24	29,70	29,59							

LOWER EDMONTON. CHARLES H. ADAMS

LITERARY AND SCIENTIFIC NOTICES.

A Practical Treatise on Topographical Surveying and Drawing, has just been published by Lieutenant Siborn, containing much valuable practical knowledge relative to Military Surveys and Drawings of Maps, and also in Modelling Hilly Countries, Fortifications, &c., with illustrative plates; the whole of which is got up in a superior style, and will, no doubt, be considered as an acquisition to the military student, if not to the practical land surveyor.

Topographical Maps.—Mr. Starling has just published a Topographical Map of Islington, near London, from actual survey, the engraving of which is executed in a style of excellence, that reflects great credit upon the artist. We hear that it is the intention of Mr. S. to follow this first production by maps of other villages in the immediate vicinity of London, which we have no doubt will meet with very great encouragement.

Prussian Atlas.—M. Vander Mœlen, of Brussels, is engaged in preparing for publication, a Universal Atlas on a large scale, of the physical, political, statistical, and mineralogical geography of the known world. The work will appear in parts.

Voyage Round the World.—Another scientific voyage to the Southern Hemisphere and Round the World, is about to be commenced by Captain Henry Foster, in the Chanticleer, a vessel of ten guns.

Mr. Joseph Woods has in the press, Letters of an Architect, from France, Italy, and Greece, containing observations on ancient and modern architecture, which are intended to convey an idea of the effect of each building, and to explain the principles on which that effect is produced.

In the press, an Essay on the Application of Mathematical Analysis to the Theories of Electricity and Magnetism.

European Scenery.—This work is as pleasing a specimen of Lithography as any that has hitherto been published, its fourth and fifth parts are now out; the former contains well drawn views of Calais, Rouen, Dieppe, and Havre, by Gauci; the latter is devoted to English subjects, presenting faithful representations of Oxford, Winchester, Darlington, and Cowes, in the Isle of Wight, by W. Westall, A.R.A., the execution of which must be considered as almost at the summit of excellence in the lithographic art.

Isle of Cuba.—At Havannah a periodical work of considerable interest is regularly published, under the title of the Annals of Science, Agriculture, Commerce, and the Arts. Its contents are devoted to the History, Geography, Mineralogy, Botany, and Statistics, &c. of the island of Cuba.

Nearly ready for publication, a Narrative of a Second Expedition to Explore the Shores of the Polar Ice, under the command of Captain Franklin; including the progress of the main part of the expedition westwardly, from the mouth of the Mackenzie River towards Icy Cape, by Captain Franklin, accompanied by Captain Back, and a detachment easterly to the mouth of the Copper Mine River, and from thence overland to winter quarters. The work will appear in quarto, with a chart and illustrations.

Part XI, of the Select Views in Greece, by W. H. Williams, Esq. Edinburgh, has been delivered to the subscribers since our last. The Views it contains, are the Temple of Minerva restored, by C. R. Cockerell, Esq.; a General View of the Corinthian Shore, as seen from a height near Voetizza; the Promontory of Sunium from the sea; Crissa on Mount Parnassus, looking up the Vale of Solona, the ancient Amphissa; and lastly, Cardamoula, the ancient Cardamyle, Gulf of Coron. The whole of which are engraved in the line manner in the best style of the art, and deserves the same commendation as the former parts of this interesting publication.

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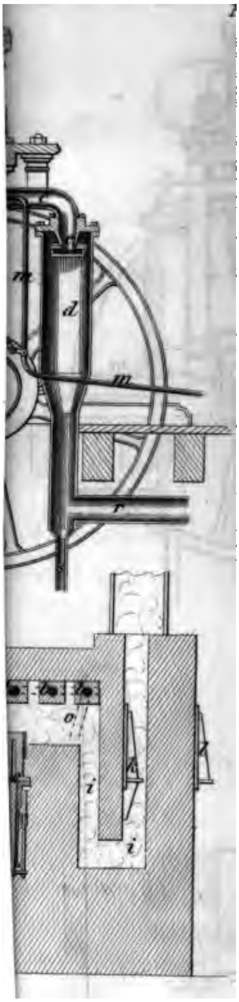
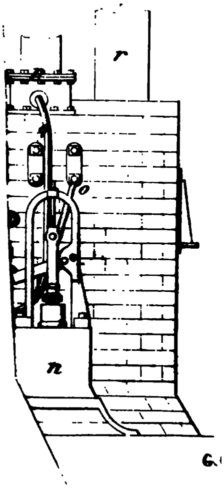




THE

London

JOURNAL OF ARTS AND SCIENCES.

No. LXXXIX.

Recent Patents.

To JACOB PERKINS, *of Fleet-street, in the City of London, Engineer, for his having Invented certain improvements in the construction of Steam Engines.*

[Sealed 22nd March, 1827.]

The subject of this patent may be considered as the completion of Mr. Perkins's improvements relative to the Steam Engine. It is not our intention at present to discuss the question of how far the high professions of the patentee have been realised; we shall state our opinions upon this subject on a future occasion; it is sufficient to say that the engine now under consideration possesses considerable novelty, both in principle and construction; and the only criterion of its advantages over other steam engines, will be found in a statement of its actual performance.

In the advancement of any new and important invention, the impediments to be surmounted are generally great, and among these no inconsiderable difficulty frequently presents itself from a discordancy among the parties who may be beneficially interested in the result. Such has, we believe, been peculiarly the case with the subject before us, and though the public may with great propriety attribute the disappointment which they have experienced in the non-completion of this invention, to some defect in the principles upon which it has been founded, yet we have every assurance on the part of the patentee, that no such difficulty has occurred, but that the impediments which have retarded its completion have arisen entirely from private sources, totally unconnected with the scientific construction of the engine.

The specification commences by stating that the present invention of improvements on steam engines apply "First to the boiler or generator; that the density of the steam may be regulated with respect to its temperature, so as to be used in whatever state may be most approved by the operator, and which is therefore denominated *perfect steam*. Secondly, with respect to the piston and cylinder, that a sufficient vacuum is made on the eduction side of the piston, without the use of the air-pump, or the usual quantity of condensing water: and Thirdly, with respect to the last mentioned improvement, that it may be applied to using high pressure steam upon a second piston, in a second cylinder, after it has acted upon a first piston, without creating any re-action on the said first piston."

In order more particularly to explain the nature of the first improvement, it is observed, that the patentee has found by experience, that in generating steam by heating water in tubes, all the parts of which are exposed to the fire, the steam will become more or less surcharged with caloric, and will often shew a much higher temperature for the power it is exerting, than would be the case if it had its proper proportion of water, thereby wasting much of the caloric as it passes off with the steam, without a proportionate power being derived, at the same time injuring parts of the engine by over-heating them. To effect this important object of insuring to the steam its due proportion of water, a strong metallic cylindrical vessel is constructed, which is denominated a steam chamber, to be fixed in some non-conducting material, having no part of it in contact with the fire. In this vessel there is constantly kept more or less water, and in the bottom of the steam chamber, a steam tube is inserted, which is connected immediately with the last generating tube. This steam tube enters through one side, and at the bottom of the steam chamber it runs horizontally, till it comes in contact or nearly so, with the other side. The under side of that part of the tube which is within the steam chamber, is perforated with a sufficient number of holes to allow the surcharged steam to rush downwards, and impinge on the bottom of the steam chamber, after which it rises by its own levity through the water, taking in its ascension its due proportion of water, so necessary to form perfect steam, or steam of its proper density with respect to its temperature.

To insure a sufficient supply of water to the steam-chamber, a small tube is connected with the pipe of the feed pump, which is attached to the bottom of the steam chamber, or the steam pipe leading to it, and to prevent the supply being too great, a regulating stop cock is inserted in this tube. Thus by surcharging the steam, and afterwards allowing it to pass through the water, which is forced into the steam chamber for that purpose, great economy is effected.

Plate XVII, fig. 1, shews a section of the generating furnace *a*; fig. 2, a side view of the same; *b, b, b*, are the generating tubes containing the water, which is kept from expanding into steam, the pressure valve being loaded with sufficient weight for that purpose; *c*, the pressure valve; the tubes *d*, are similarly formed to those above, and are called the receiving tubes, into these the water rushes from the steam chamber, and in its course, takes up not only caloric enough to convert it into steam, but to surcharge it; by which means the water that is injected directly from the force pump into the bottom of the steam chamber is also converted into steam, thereby rendering it what the patentee calls perfect steam.

The steam chamber *e*, is to be about half full of water, and to communicate with the tubes *d*, by the passage *f*; *g*, is the steam pipe; *h*, the escape valve; *i*, *i*, *i*, the descending flue; *k*, a valve for opening a more direct communication with the chimney, by which means the fuel is more readily ignited when the furnace is about to be heated; *l*, is a valve for admitting air into the chimney, by which means the quantity requisite for combustion is regulated; *m*, the ash pit; *n*, the injecting pump; *o*, the injection pipe; *p*, the hot water cistern, *q*, the pipe leading from the hot water cistern, to the injecting pump; *r*, the chimney; *s*, *s*, *s*, the caps and screws connecting the tubes together, so as to form one continued course; *t*, *t*, the injection tube which leads immediately from the injecting pump into the steam chamber, without passing through the steam generators; *v*, the stop cock for regulating the quantity of water which is forced into the steam chamber, for the purpose of being expanded into steam.

The tubes of the generator may be square, round, or of any poligonal figure, the form being unimportant.

Figs. 3, and 4, have reference to the second improvement only, shewing how the vacuum is produced on the eduction side of the piston. Fig. 3, represents a section of the cylinder piston and condenser. Fig. 4, an elevation of the engine complete. At the bottom of the cylinder the perforations are shewn at which the steam escapes when the piston has descended sufficiently far to allow it to pass off.

This engine is denominated a single stroke high pressure safety engine; *a*, the cylinder; *b*, the flexible metallic piston, with elastic packing; *c*, the condenser; *d*, the receptacle for the uncondensed steam; *e*, *e*, the valve for shutting of the active steam from that which is to be condensed; *f*, the induction valve; *g*, the throttle valve; *h*, *h*, the steam-pipe; *i*, *i*, the frame for supporting the cylinder; *k*, the piston rod; *l*, *l*, the parallel guides; *m*, *m*, the injection pipe; *n*, the lever for opening and shutting the injection pipe, by the means of a stop-cock; *o*, the lever for opening the induction valve; *p*, the pump-rod; *q*, the fly-wheel; *r*, the aperture for letting off the uncondensed steam; *s*, the tube for leading the condensed steam and heated water into the pump cistern; *t*, *t*, *t*, perforations around the lower end of the cylinder, where the piston arrives at the end of the stroke, giving sufficient time while at the dead point, for the principal part of the steam to flash out into the condenser *c*, and the receptacle *d*, and thence into the aperture *r*, leading to the chimney, when it becomes reduced to atmospheric pressure, which allows the vacuum valves *e*, *e*, to close.

At the moment this takes place, the injection pipe *m*, delivers its jet of water into the condensor *c*, containing about 1-6th or 1-8th of the steam used in the cylinder and which jet of water falls on the valves *e*, *e*, together with the water of the condensed steam. The piston now rises by the impulse of the fly wheel, and at the next discharge of steam, the water as well as the air, is thrown into the receptacle *d*, passing down the tube *s*, into the feed-pump cistern, from whence the heated water is forced into the generator. Should any steam remain uncondensed in the cylinder after the piston in its ascent passes the perforations, it will find its way through the valve *v*, which is opened by its spindle coming in contact with the top of the cylinder, and a perfect condensation takes place before steam is again admitted, thereby taking away all resistance from the eduction side of the piston; *w*, is a lever by which the throttle valve is regulated.

Figs. 5 and 6, refer to the third improvement, shewing the application of the same principles in using high pressure steam upon a second piston. Fig. 5, represents an engine, having two single stroke cylinders of different sizes, combined, the object of which is, to take the utmost advantage of the expansive property of steam, and thereby effecting a great economy in the consumption of fuel, particularly when worked with steam of very high pressure; *a*, the large cylinder; *b*, the small cylinder; *c*, the large valve; *d*, the small piston; *e*, *e*, the piston rods: *f*, the crank shaft; *g*, the fly wheel; *h*, *h*, guide wheels, which work up and down in the guides *i*, *i*, and produce the parallal vertical motion of the pistons: *k*, the throttle valve; *l*, the induction valve; *m*, the passage of communication between the small and large cylinders; *n*, the steam pipe, *o*, the lever for opening the induction valve, which is in connection with the injecting pump. The act of pressing down the arm of the lever *o*, opens the induction aperture.

p, *p*, shews a series of apertures, through which the steam passes, first from the small cylinder into the large one, and ultimately from the large cylinder into the condenser, after it has performed its proper degrees of expansion, and is condensed in the same manner as has been described in the single stroke engine.

It will be seen that the large cylinder in this figure has eight times the content of the small one, and that both the pistons are worked with the same crank. The steam is first admitted through a very small induction valve, at the lower end of the small cylinder, at a pressure, say for example of 100 or more atmospheres; and when the small piston has ascended, say one eighth of the stroke, the induction valve is closed, and all further communication is cut off, until the downward stroke of the large piston is completed. When the small piston has finished its stroke, and has entered the enlarged space *p*, at the top of the cylinder, the steam which has expanded to ten or more atmospheres, rushes through the communication pipe (which is always open) from the small to the large cylinder, and at the beginning of the downward stroke of the piston in the large cylinder, the steam acts with a force equal to about one eighth of the power which it exerted when acting on the small piston at the beginning of the stroke, but as it acts on a piston whose area is eight times that of the small one, the power will be the same.

It will be seen by this modification, that there can be no re-action on either piston. When the small piston is moving upwards, and doing the work of the engine, the large one is also moving in the same direction, but as the piston's valve *x*, is opened by the spindle, coming in contact with the bottom of the cylinder, if any steam should remain uncondensed, the pressure will be equal on both of the pistons: and when the large piston is descending and doing its work, the small one is also descending, but as its valve *x*, is then open, the pressure of the steam is equal on both sides of this piston also.

That the steam should not begin to act on the large piston before it had reached the dead point, it is made to have finished its stroke when the small one has made nineteen twentieths of its stroke, at which time the communication between the two cylinders is opened by the small piston having entered the enlarged space *p*, where the perforations before alluded to are made. The large piston in its turn, having finished its stroke sooner than the small one, the condensation will begin to take place before the small piston has reached its dead point, and, of course, before the induction valve is opened.

The vacuum is effected at the bottom of the large cylinder, in the same manner as has been described in the single stroke engine. It will be seen that this double stroke engine requires no eduction valve to either cylinder, and but one small induction valve to the small cylinder. Figure 6, is a sectional plan of the lower part of the large cylinder, where the perforations are made for the escape of the steam into the condensor, as before described.

Such is the description given by the patentee, of his invention, and the peculiar features intended to be claimed are expressed in the following words:—

"I claim as my invention, the three several improvement hereinbefore named, that is to say, *First*, the improvements in the construction of the boiler, by the addition of the steam chamber *e*, for the purposes aforesaid, and the arrangement of the tubes *d*, *d*, *d*, with reference thereto.;

Secondly, The improvements in the construction of the cylinder, with an enlarged space and perforations, as before described, for the purposes aforesaid, as also the arrangement of the condensing apparatus.

And Thirdly, the improved construction and relative arrangement of the two pistons and cylinders shewn in fig. 5, whereby the high pressure steam which has acted upon one piston, is conveyed to and acts upon a second piston, without causing any re-action on the first, as before stated. And whereas such said three several improvements being to the best of my knowledge and belief entirely new and never before used within that part of His Majesty's United Kingdom of Great Britain and Ireland, called England, His said dominion of Wales, or Town of Berwick upon Tweed. I do hereby declare this to be my specification

Brown's Vacuum Engine.

Fig. 1.

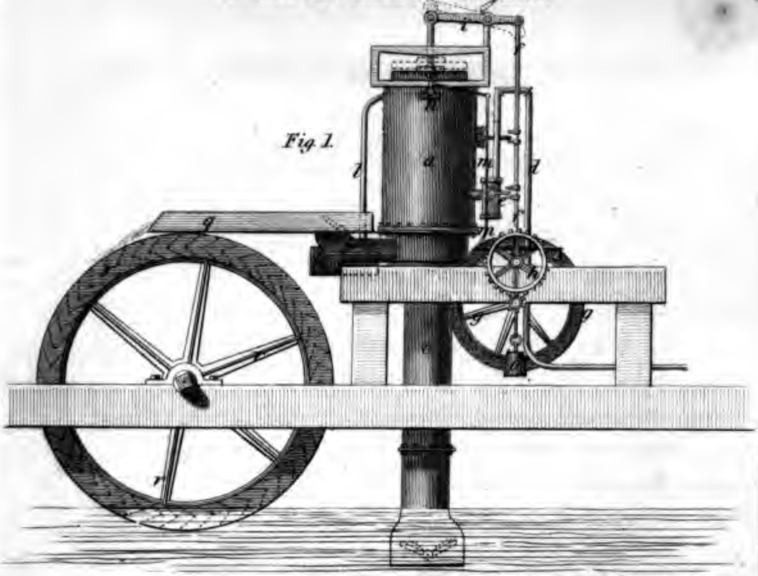
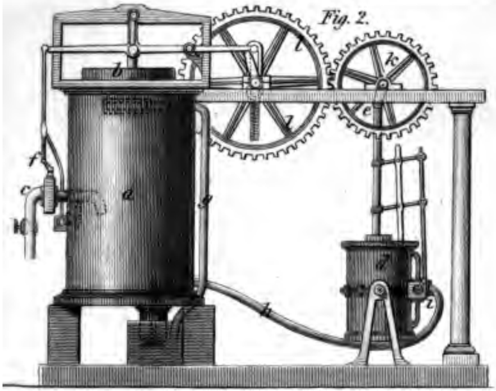
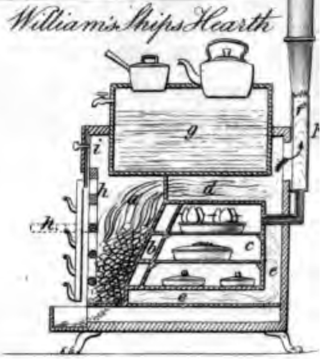


Fig. 2.

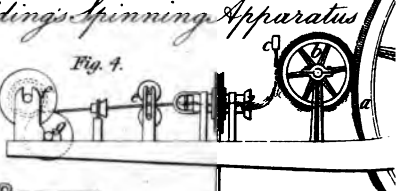


William's Ships Hearth



Goulding's Spinning Apparatus

Fig. 4.



DeCombie's Rotatory Steam Engine.

Fig. 5.

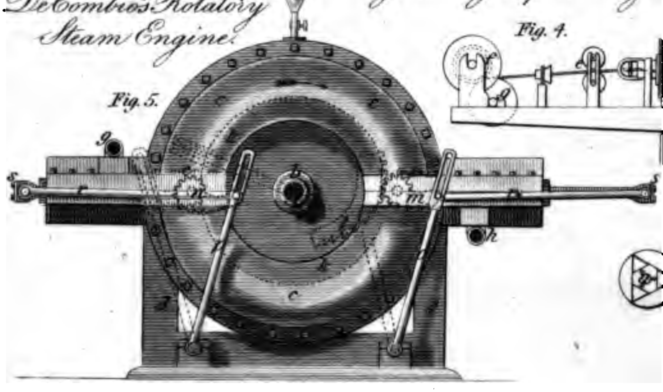
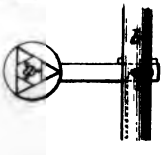


Fig. 6.



of the same, and that I do verily believe this my said specification doth comply in all respects fully and without reserve or disguise with the provisos in the said hereinbefore in part recited letters patent contained, whereby I hereby claim to maintain exclusive right and privilege to my said improvements."

[*Inrolled September,* 1827.]

Mr. Perkins's mode of generating steam by keeping the water under pressure, which forms a most important feature connected with the present invention, will be found in our sixth volume; his improvements in the construction of valves, and in the packing of pistons for high pressure steam engines, are given in our seventh volume; and many notices of the progress of the invention may be seen scattered through the subsequent volumes.

To Samuel Brown, *of Eagle-Lodge, Old Brompton, in the County of Middlesex, Gentleman, for his Invention of certain Improvements on his former Patent, dated December 4th 1823, for an Engine or Instrument for effecting a Vacuum, and thus producing power, by which Water may be raised, and Machinery put in motion.*

[Sealed April 25th, 1826.]

This invention is intended as an improvement upon the gas engine, for which a patent was granted under the same title in 1823, as above stated, and the specification of which is reported in our Eighth Vol. page 57, and Plate III.

We took occasion to observe in our former notice of this invention, that the engine then under consideration, did not appear in principle to be capable of standing in competition with the steam engine, but that having gained much notoriety, and the approbation of certain gentlemen of considerable repute in the field of science, (who ought to have known better) we should pay every attention to the progress of its completion, and from time to time notice the effect of its operation.

From that period to the present moment, the invention has, according to our view of the subject, been retrograding, and though the engine in its first shape was an effective engine, though of small power yet with its subsequent modifications, and additions, called improvements, we can scarcely now admit it to be a working engine at all.

Taking up the principles first proposed as a basis, (viz. the ignition of inflammable gas in a close vessel for the purpose of producing a vacuum, and thereby causing water to flow above its natural level,) the subjects of the present patent are, first, a certain method of applying the water raised by the vacuum to the turning of a bucket water wheel, in order to drive machinery connected to its axle; secondly, combining a cylinder and working piston, by means of a pipe, with a vacuum chamber, for the purpose of moving the piston in a similar way to an atmospheric engine, and thereby producing a power capable of being applied as an actuating force.

Plate XVIII, fig. 1, shews the general construction of the apparatus as proposed under the first head; *a*, is a cylindrical hollow vessel, having a cap or loose cover *b*, and at the bottom of the cylinder, which is likewise open, a tube *c*, is attached, corresponding to the rising main of a water pump; *d*, is a pipe leading from a gasometer, which is bent as a syphon, and through this pipe a current of gas is admitted to the interior of the cylinder, by means of a slide valve at *e*. The perpendicular rod *f*, is intended to open the valves much in the same way as in a steam engine.

A small bucket water wheel *g*, is mounted upon an axle, and made to revolve by a stream supplied by any natural or artificial means. Upon the end of the axle of this water wheel, there is a pinion taking into a toothed wheel *h*, which is thereby put into rotatory motion; and upon the axle of this last mentioned wheel *h*, there is a crank or wiper acting in a long slot in the perpendicular rod *f*, which moves the rod up and down as the wheel goes round.

The rising of the rod *f*, lifts the shorter arm of a lever *i*, and causes the cap or cover *b*, to shut down close upon the top of the cylinder; the edges being perfectly even, and packed with Indian rubber, (prepared according to Hancock's Patent,) so as to form an air tight joint. As the rod *f*, rises, a small tappet attached to that rod, opens the slide valve *e*, and allows a current of gas to pass into the cylindrical vessel *a*; at nearly the same time, another slide valve just above *e*, is raised by similar means, and the flame of a jet of gas or lighted lamp, situated at that aperture, instantly ignites the volume of gas within the cylinder, and by consuming the air therein, produces a vacuum.

The two slide valves, last mentioned, now closing by their own gravity, preclude the admission of air, and the pressure of the atmosphere acting upon the surface of the water in a small reservoir *k*, causes a jet to pass up the pipe *l*, into the exhausted vessel *a*, which assists in condensing the vapour; and the vacuum thus becoming more perfect, the volume of water now rises up the main c, and fills the cylinder.

The position of the wiper on the axle of the wheel *h*, as it revolves, having now allowed the rod *f*, to descend, a lever connected to a small rod *m*, is depressed, and the valve *n*, opened, for the admission of air into the cylinder; by which the cap *b*, being relieved from the external pressure, is immediately drawn up by the weight *o*, at the lower end of the rod *f*, and the water in the cylinder now runs out through a trunk *p*, into the shute or trough *q*, from whence it is discharged on to the bucket wheel *r*. Thus the wheel *r*, is made to revolve in the way of an ordinary over-shot water wheel, the shaft or axle of which communicates the power designed to be employed as a first mover of any kind of machinery.

It may be necessary to add that two vessels *a*, are proposed to be employed contiguous to each other, with their appendages as above described, the actions of which being reciprocal, a constant supply of water will be raised; and the large bucket-wheel kept in continual rotatory motion.

The second head of the invention is the application of the same method of exhaustion, to the working of a piston in a cylinder like the double stroke steam-engine.

Fig. 2, represents the improved construction of an engine, formed upon the principles already explained; *a*, is a cylindrical vessel, in which the exhaustion is to be made; *b*, is the moveable cap or cover of that vessel; *c*, is the pipe by which the inflammable gas is conveyed to the interior of the vessel; *d*, is the cylinder containing the working piston; and *e*, the crank shaft to which the piston rod is attached: the actions of the piston being intended to work the various valves belonging to the exhausting vessel, but which need not be particularly explained, as that may be effected in several ways, like the opening and shutting of the valves of a steam-engine.

The cap of the vessel *a*, being shut down, a current of gas is admitted from the pipe *c*, to the interior, by the opening of a valve at *f*, immediately after which another valve below is raised, and the flame of a burning jet is communicated to the inflammable vapour within. The ignited gas having consumed the air which occupied the vessel, a vacuum takes place; and water rushes up the pipe *g*, from the reservoir below, and is distributed over the interior of the vessel in a shower, through a perforated rose head, which cools and condenses the vapour.

The communication being open between the lower part of the vessel *a*, and the working cylinder *d*, by the flexible pipe *h*, the air which occupied the interior of the working cylinder is drawn out by the pipe *h*, through the valve box *i*, into the exhausted vessel *a*, and air being admitted by the valve *i*, to the reverse end of the cylinder, the piston immediately falls, bringing the rod and crank *e*, to which it is connected, down with it. This movement of the crank turns the toothed-wheel *k*, upon the crank shaft *e*, which drives the wheel *l*, and upon the axle of this wheel are the wipers that raise the levers, which lifts the cap and open and shut the valves of the gas-pipe, and igniting aperture above described.

It is proposed that three of the exhausting vessels *a*, should be placed along side of each other, and that three working cylinders *d*, and pistons should be adapted, and connected severally to the respective exhausting vessels, by pipes *h*, and the upper ends of the piston rods being attached to a three throw crank *e*, the consecutive operations of the three exhausting vessels, and the working pistons will keep the crank shaft in constant rotatory action, which action is to be communicated in the usual way as a moving power, for the purpose of working other machinery.

The working cylinders *d*, are not stationary, but suspended upon pivots, in order that they may oscillate, and accommodate themselves to the positions of the piston rods as the cranks go round. And at the lower part of the exhaustion chamber *a*, there is a tube, with a valve opening outwards, for the purpose of allowing the water, which is injected into the vessel by the rose head, to pass off into the cistern or reservoir below.

The flexible pipe *h*, is proposed to be made of Indian rubber, in the way proposed in Mr. Hancock's patent above alluded to.

The patentee says that he formerly proposed to employ carburetted hydrogen gas in its most pure state, as the material to be ignited in producing a vacuum within the chamber; it is however now considered preferable to mix the gas with atmospheric air, which will cause the vacuum to be more perfect. The proportions are, if coal gas is employed, about half its bulk of common air, not more, as a greater proportion of atmospheric air would render the mixture explosive. Or instead of coal gas, the vapour or steam of boiling alcohol, or oil of turpentine, would answer the same purpose.

The specification states that mixtures of air and gas, in all proportions, and the steam of boiling spirits of any kind, inflamed within a close vessel by means of an ignited jet for the purpose of obtaining a vacuum, is claimed as a leading feature of the patent.

[*Inrolled October*, 1826.]

To Alexander Lamb, *of Princes Street, next the Bank, in the City of London, Gentleman, and* William Suttill, *of Old Brompton, in the County of Middlesex, Flax-spinner, for their Invention of certain Improvements in Machinery for Preparing, Drawing, Roving, and Spinning, Flax, Hemp, and Waste Silk.*

[Sealed 17th November, 1825.]

The patentees state that their improvements in machinery employed for preparing, drawing, roving, and spinning flax, hemp, &c. extend through the whole series of apparatus by which these operations are performed; from the breaking of the rough flax or other material, in the first instance, to the spinning of it into yarn. It does not however, appear that there are any striking features of novelty proposed in the construction of the improved machinery, but that existing methods are employed, with certain modifications, so as to produce not a new, but a more beneficial result than heretofore.

From this general statement, it might be expected that in every stage of the process, something of novelty would be introduced; this, however, we cannot discover from the specifications, and indeed, are considerably at a loss in attempting to point out what are the specific matters intended to be claimed under this patent.

The rough flax, hemp, or other material having been broken in the usual way, it is to be heckled, for the purpose of opening the fibres, and clearing away the boon, by means of a revolving cylinder, upon the periphery of which several rows of heckles or series of points are set, extending lengthwise at certain distances apart; and between each of these rows of points, there is placed a plain rib of iron, or other hard surface.

The flax or hemp is now submitted to the action of the heckles, by being spread out upon the periphery of the cylinder, which is made to revolve, and the fibres of the material are opened by the points of the heckles passing between them, as in combing, the plain ribs scraping off the boon.

For the purpose of refining the heckled flax, it is next submitted to a rubbing process between two flat surfaces. These surfaces are circular plates, which are placed in contact, and made to rub against each other, by being moved excentrically, and in opposite directions. The plates being kept together by springs on the sides.

After this refining process, the material is to be heckled again by hand in the usual way, and then submitted to a drawing machine, the rollers of which are not to be cylindrical as usual, but conical and fluted, the cones standing in reverse directions to each other. The consequence of this mode of drawing the fibres of the material by conical rollers, certainly cannot have been considered by the patentee, or at least not submitted to trial, or the impossibility of its producing the desired effect would be immediately obvious.

At the front part of the drawing frame, the spindles and flyers are placed, for the purpose of spinning the fibres into the first rope or roving; but, it is proposed that the spindles shall lie in horizontal positions instead of perpendicularly as usual. The end of the spindle is to have a spiral formed eye, for the purpose of keeping the fibres as near the centre of the spindle as possible, which will in a great measure prevent the fibre boing broken by the centrifugal force. The spiral eye being cut through one side of the spindle will afford the means of readily joining the fibres when any one of the rovings break.

In order to temper or regulate the taking up of the yarn or roving upon the bobbin, slight springs are placed against the sides of the bobbins, for the purpose of partially retaining them, or retarding their rotation; which springs are formed by upright wires set into an horizontal board, and when the retention of the bobbin is required to be increased or diminished, the board is slidden backward or forward by a screw, by which means the springs are pressed with greater or less force against the bobbin.

When the material is further spun, and wound on to copts in a mule or billy, the spindles are in that machine to be placed horizontally instead of obliquely, with a spiral groove or worm cut in the end, for the better guiding of the thread or yarn, and the faller wire being moved in a suitable way, the thread or yarn is regularly wound upon the copt. The advantage of the spiral cut in the end of the spindle, is, that the fibres being brought into the centre, will not be subject to so much centrifugal action, and therefore, a finer yarn may be produced without the risk of breaking in the operation.

It is proposed that the delivering rollers in front of the machine between which the material passes to be stretched and spun, shall be made of glass, ground or ruffed on its surface, and in some cases, it may be desirable that the eye of the spindle be also of glass. It is likewise recommended, that two slight springs be affixed to the spindle, diverging in straight lines from the point, over which, the spool or shell intended to receive the copts, being passed, it will be held firmly while the winding is going on, and may be removed thence when full, and another spool placed in the same situation.

[*Inrolled May*, 1826.]

To Robert Warnum, *of Wigmore-street, Cavendish-Square, in the County of Middlesex, Piano-Forte-Maker, for his Invention of certain Improvements on Piano-Fortes.*

[Sealed 4th July, 1826.]

The subjects of this patent are certain variations in, and additions to, the internal mechanism of an upright piano-forte, or what the patentee denominates, a professional piano-forte. The improvements are described as belonging to the action of the instrument, and are expressed in terms so decidedly technical, that few besides a workman in that particular branch of business can possibly comprehend either the proposed construction, or its intention.

The improvements apply both to what are called the single and the double action. In the first instance a new *hopper* is to be introduced, the end of which is to be bushed with cloth, and a mortice hole cut in it, for the regulating pin to pass through; Secondly, an arm is to extend from the *sticker*, with a button for the damper wire; third, a pedal to be called the *pizzicato* pedal, is to be introduced between the two ordinary pedals, which, by means of suitable cranks, is to move a block at the back end of the dampers, for the purpose of withdrawing them from the wires, which will produce a most beautiful pizzicato effect.

These are the leading features proposed under this patent, it will therefore readily be perceived how uninteresting a more detailed account of this invention would necessarily be to the general reader.

[*Inrolled September,* 1826.]

To JOHN WILLIAMS, *of the Commercial Road, in the County of Middlesex, Ironmonger and Ship's Fire Hearth Manufacturer, for his Invention of certain Improvements on Ship's Hearths, and Apparatus for Cooking by Steam.*

[Sealed 27th April, 1826.]

THIS invention consists in certain peculiarities in the construction of a cooking stove to be used on ship board; principally relating to the flues.

Plate XVIII, fig. 3, represents a section of the stove; *a*, is the grate, at the back of which there is an air passage *b*, forming one side of the oven *c*; *d*, and *e*, are flues, passing under and over the oven, and leading to the chimney, *f*; *g*, is the boiler; *h*, are falling bars in front of the grate, and *i*, is a sliding plate to be occasionally lowered and act as a blower.

The first feature of novelty proposed, is the air-channel *b*, which is supplied by an aperture with a slider opening from the outside near the bottom. The atmospheric air thus admitted, passes along the lower compartment, and becomes heated, then upwards into the second, returning again along that channel, it then rises into the third; and proceeds from thence through the upper part of the oven, and escapes by a small pipe into the chimney. The advantage of this air channel is that the the fire of the grate will not be allowed to come in immediate contact with the oven, and also that in passing through the top of the oven, it will cause the meat in that compartment to be roasted instead of baked.

The second feature is the introduction of two sliders or dampers into the flues *d*, and *e*. When it is required to throw the greatest heat into the boiler, then the damper of the lower flue *e*, is closed, and the flame and smoke passes through the flue *d*, but when on the contrary the heat of the oven is to be increased, the upper damper is closed, and the flame, smoke, and other vapour passed through the flue *e*, under and behind the oven. Apertures are made in the upper part of the boiler for introducing the bottom of a tea-kettle, or saucepan, which are to be made boil by the heat of the steam.

The third feature is two falling bars *h*, in front of the grate, which being let down, as shewn by dots, form a ledge to set any vessel upon for stewing, &c. When it is required to increase the strength of the fire, the plate *i*, is slidden down over the upper part of the grate, which then acts as a blower.

[*Inrolled June*, 1826.]

To JOHN GOULDING, *Citizen of the United States of North America, but now residing in Cornhill, in the City of London, Engineer, for his invention of certain improvements in the Machines used for Slubbing, Slivering, Roving, or Spinning Wool, Cotton, Waste Silk, short stapled Hemp and Flax, or any other fibrous materials or mixtures thereof.*

[Sealed 2nd May, 1826.]

THIS invention is a method of slightly twisting the fibres of wool, cotton, or any other filamentous material, as it comes in the sliver from the carding engine, which is effected by passing the material through a revolving tube.

Plate XVIII, fig. 4, shews the improved apparatus as it is proposed to be attached to a carding engine; *a*, is a portion of the large cylinder; *b*, the doffer cylinder from whence the wool or other material is struck off in a sheet or sliver by the action of a doffer or comb *c*, which is common to all carding engines. The sliver is then drawn together, and passed through the tube *d*, which is made to revolve in bearings, by an endless strap, actuated by any convenient apparatus connected to the working parts of the engine. By these means a slightly twisted roving is produced, which proceeding from the tube *d*, passes between drawing rollers *e*, and thence to the bobbin *f*.

In order that the bobbin may take up the roving as it comes from the drawing rollers, the roller *g*, is mounted upon an axle, and made to revolve, and the barrel of the bobbin bearing upon the periphery of this roller, it turns by the friction of contact, and winds the roving thereon; and when the bobbins are full of roving, they are removed and placed in the spinning machines as usual.

This contrivance may be adapted in different stages of the spinning and preparing process, and it may be applied as shewn, or on the side of the carding machine, allowing the sliver when drawn up to be conducted obliquely, or in any direction that may be found convenient.

The patentee states that his claim of patent right extends no farther than to such parts of the apparatus as have not been known, or used before. This is certainly a very convenient way of setting forth a claim of invention, but which if we are not mistaken will be found to be extremely limited, as the intention of the patentee appears to have been anticipated in a part of the specification of Davis's patent, for improvement in converting wool into slivers, or threads, &c., see our thirteenth Vol. page 83, and Plate IV, fig. 7; that is if we understand the intention of the former patentee correctly.

[*Inrolled November*, 1826.]

To **Louis Joseph Marie Marquis de Combio,** *a Native of France, but now residing in Leicester-square, in the Parish of St. Martin in the Fields, and County of Middlesex, in consequence of a communication made to him by a certain Foreigner residing abroad, for an Invention of certain Improvements in the construction of Rotatory Steam Engines, and the Apparatus connected therewith.*

[Sealed 23rd May, 1826.]

The invention is a rotatory steam engine, or a steam wheel, the peculiar novel features of which are, the form and construction of a revolving piston, and a sliding steam stop. Plate XVIII, fig. 5, is a side view of the engine, (omitting some of the minor details, which, though essential to the correct action of the machinery, do not possess any peculiar novelty.) Fig. 6, is a representation of the axle, with the piston detached.

The piston is formed as a circular disc *a*, and is firmly fixed to the axle *b*. The chamber in which the piston is to act, is an annular tube *c*, *c*, *c*, the inner surface of which is perfectly circular, in order that the edge of the piston or disc *a*, may fit close to the chamber in every part, as it travels round; and this fitting is rendered more complete and steam tight by a metallic packing, constructed of segments of metal pressed outwards by wedges and springs, in the way of Barton's patent metallic packing.

The annular tube *c*, is made fast to the standards *d, d*, and to other fixed parts of the frame work, the disc or piston having been previously introduced, and attached to an arm extending from the axle: and steam being admitted into the annular chamber, the piston is driven round by its elastic force, and carries the axle *b*, round with it.

In order to form a steam stop, or resisting part, against which the steam may exert its elastic force in driving the piston forward, horizontal sliders are alternately introduced on each side of the steam chamber at *e*, and *f*, and the mechanism is so contrived, that each slider is drawn back out of the chamber as the piston approaches it, in order that the piston may be permitted to pass; and immediately after passing, the steam stop is slidden forward again, for the purpose of forming the resisting surface against which the elastic steam is to act in impelling the piston.

Steam at a high pressure is proposed to be employed, which is admitted into the annular chamber by the pipes *g*, and *h*, through induction valves, opened and shut by any convenient mechanism connected to the moving parts of the engine. This mechanism is, however, omitted in the figure, to avoid confusion.

Let it be supposed that the piston is at that part of the chamber represented by dots in fig. 5, having just passed the induction aperture at *e*, leading from *g*, on the left hand side, the slider will now be moved forward into the chamber, and form a partition or stop, against which the steam exerting its elastic force, drives the piston forward. When the piston has proceeded some distance round the annular chamber, the induction valve is closed, and the steam acting expansively, impels the piston onward, until it arrives at the induction aperture *f*, on the right hand side.

The instant the piston has passed this aperture, the slider is brought forward into the annular chamber, forming a partition as in the former instance, and the steam now admitted from the pipe *h*, exerting itself against this slider, drives the piston through the other half of its circuit in the same way as above described; and having again passed the left hand aperture at *e*, that steam stop slides out as before, and so on; the expended steam passing off before the piston through an eduction aperture in the axle shewn at *i*, fig. 6, which becoming uncovered at certain parts of the rotation, allows the steam to blow through the hollow axle shewn by dots in the last mentioned figure.

Thus by the traversing of the piston round the annular tube, a rotatory action is given to the axle in the centre of the engine, which may be employed as the motive power for driving any description of machinery.

The manner of working the sliding steam stops, is shewn in fig. 5, by dots. Upon the central axle of the engine *b*, a circular plate *k*, is attached, which carries a toothed cam *l*. This cam has cogs or straight teeth on one part of its periphery, and ratchets or oblique teeth on another part, which are intended as the axle goes round, to take into the teeth or the ratchets, upon the edges of the crank pieces *m*, *n*. The axles of the pieces *m*, and *n*, are fixed in the frame or stationary parts of the engine, their extremities or cranks being attached to the upper ends of the rocking levers *o*, and *p*, which are employed for moving the sliders.

Now supposing the piston to travel round in the direction of the arrow, the segment toothed part of the cam *l*, coming in contact with the semi-circular edge of the crank piece *m*, would turn it half round, and bring the lever *o*, into the position shewn by dots, by which movement of the lever *o*, the rod *r*, fig. 5, would be drawn inwards, and the end of the steam stop being attached to this rod by a swivel joint *s*, it would be slidden horizontally into the chamber, and form the partition, for the purpose above described.

The cam *l*, as it further proceeds in its revolution, comes against the ratchet part of the other crank piece *n*, which by that means is turned over also; when the lever *p*, in falling into the position shewn by dots, causes the steam stop on the left hand of the machine to be slidden back, making way within the annular chamber for the free passage of the piston. In this way the rocking levers are made to vibrate upon their fulcruums by the rotatory cam upon the main axle, and the sliding steam stops are moved in and out of the annular chamber at the precise times required for producing the operations above described.

In order to lubricate the internal parts, and reduce the friction of the piston, oil or other anti-attricious matter is introduced into the annular chamber, from a funnel *t*, at top, in the neck of which a cock is placed, and occasionally opened by a rotatory apparatus connected to the working part of the engine, or in any other way that may be found convenient.

The patentee says that an engine upon the construction above described, has been erected and placed on board the Dauphin Steam Packet, on the river Seine, he does not however confine himself to that construction precisely, but claims any modification of the plan, in which the circular disc piston, formed and packed as above, is carried round within an annular chamber, with sliding steam stops moved by cams and levers as above explained.

[*Inrolled November*, 1826.]

To William Choice, *of Straham Terrace, Auctioneer, and* Robert Gibson, *of White Conduit Terrace, Builder, in the Parish of St. Mary Islington, in the County of Middlesex, for their Invention of certain Improvements in Machinery for Making Bricks.*

[Sealed 27th April, 1826.]

The drawing, which accompanies this specification, is an attempted representation of the machine in perspective, but so extremely rude and inaccurate, that we can only give a general idea of the intentions of the patentees, not being able to comprehend precisely how they propose to put those intentions into such a mechanical form as may be capable of acting.

The machine consists, in the first place, of an upright shaft, which is made to revolve by an arm with a yoke, to be attached to a horse as in ordinary horse mills. To the upper part of this central shaft, a large horizontal toothed wheel is affixed, which takes into another horizontal toothed wheel on the top of the perpendicular shaft of a pug-mill. Thus the traversing of the horse in its circular track, turns the central shaft, and all that is appended to it, and also drives the shaft of the pug-mill.

The pug-mill as usual, is a large cylindrical tub set upon its end, containing the clay and other materials of which the bricks are to be made, and the perpendicular shaft turning within it, carries a series of knives, which as they revolve, cut up and mix the clay and other materials together, and discharge it, after being so mixed and prepared, through an aperture near the bottom of the tub, on to a circular plate.

The bricks are to be formed in hollow moulds or boxes, about thirteen inches long, nine inches wide, and two and a half deep, with partitions dividing them into three, by which means three bricks will be made at a time. These boxes have three plungers within each, for the purpose of pushing the bricks out of the moulds when made.

At the lower part of the upright main shaft, three levers are attached in radial positions, by joints, which allow them to rise and fall perpendicularly. These radial levers are placed at equal distances apart, and at their outer extremities carry the mould boxes. About the middle of each lever, at its under side, a roller is attached, upon which rollers, the levers carrying the moulds run round as the upright shaft turns; and in their course the moulds receive the clay, and afterwards deposit it in the form of bricks, on to an endless band, which conducts them away to be dried and burnt.

It being now understood that the mould boxes traverse round for the purpose of receiving the clay, and then discharging the brick, it remains to be explained by what means the boxes are made to rise and fall, and to effect these objects.

On the floor of the machine, round which the levers and mould boxes traverse, three inclined planes are fixed, and over these, the rollers on the under side of the levers pass as they proceed round. Let it be supposed that one of the rollers is now ascending one of the inclined planes, the lever will be raised on its fulcrum joint, and the mould box lifted up; when the roller has reached the extremity of the inclined plane, the lever instantly falls down, and causes the mould box to strike on to a bed of soft clay, discharged from the pug mill, and spread upon a circular flat plate beneath.

The mould having been thus filled with clay, it is slidden off on to the surface of another flat plate, which being wetted, smoothens the under part of the bricks as they slide over it. From the last mentioned plate, the mould box slides on to an endless band, upon which small boards are previously placed to receive the bricks, and a heavy block or rammer falling at this time on the upper surface of the mould box, (by the action of a lever depressed by a cam on the under side of the large horizontal toothed wheel as it revolves,) the projecting heads of the plungers are driven into the box, and the bricks forced out of the moulds on to the endless band, which, as before said, conducts them away to be dried and burnt.

The roller under the lever, now rises up the second inclined plane, lifting the empty mould box, and when it arrives at the edge of the inclined plane, down falls the lever, and plunges the mould box into a vessel of water, placed beneath for the purpose of wetting the mould.

The third inclined plane effects the same action, and causes the mould to fall into a vessel of dry sand, which sand adhering to the wetted surface of the mould, prepares it to receive the clay for another set of bricks, in the manner already explained.

There being three mould boxes affixed to the three levers as above stated, their actions are conscentive, and similar, every rotation of the horse with the central shaft producing nine bricks.

These are the intended operations of the machine, the leading features of novelty in which, are the levers that rise and fall with the moulds, in the way, and for the purposes above stated. There are several of the minor details of the machine, which we cannot comprehend from the specification, but we presume that its general construction will be sufficiently evident from the above.

[*Inrolled June,* 1826.]

To PETER GROVES, *of Liverpool-street, in the City of London, Esq. for his invention of certain improvements in manufacturing and making White Lead.*

[Sealed 4th July, 1826.]

THE improvements proposed under this patent, are a new mode of producing a material called ceruse or white lead, for the use of painters. It is proposed to take a quantity of sulphuret of lead, or lead ore, say half a ton, and having broken it by pounding or rolling into a powder, then burn or roast it at a temperature below that which would melt the metal. After the ore has become cold, it is to be pulverised again, and reduced to the finest powder, and then well washed in water, taking off the lighter particles which float, and pounding the courser again, until the whole is reduced as fine as possible.

This powder is now to be dried in pans, by exposure to the air, or in a suitable stove; and when perfectly dry, about two hundred weight of salt petre is to be mixed with it, and the whole placed in a retort to undergo a sort of distillation.

The retort to be employed is a cylindrical vessel of iron, lined with lead, placed erect, within another as a jacket, and fastened together by flanges, forming a steam tight joint, and leaving a space between all round and at bottom, for the passage of steam, by which the retort is to be heated.

In this vessel, the materials above prepared are to be placed, and to be constantly agitated during the operation, by means of a perpendicular shaft with arms, which is introduced into the cylinder, and may be turned round by hand, or by any other convenient means.

Above the cylinder there is a vat, or cistern, intended to contain about two hundred weight of sulphuric acid, of a specific gravity of from 1·400 to 1·740. From this vat two pipes descends, one leading to the top of the cylinder, which admits the acid through a stop cock, the other to the bottom, through the latter of which, by means of a force pump, the acid is gradually injected into the cylinder at the lower part.

Steam from a boiler under considerable pressure is now admitted into the chamber surrounding the containing cylinder, for the purpose of heating the materials within. This operation is to be continued for several hours, the stirrer being continually turned, for the purpose of bringing all the particles of the material under the action of the acid and the heated vapour.

The top of the cylindrical vessel is of course to be closed, having an aperture with stuffing, through which the upper end of the spindle or shaft of the stirrer passes, but a tube is introduced into the top for the purpose of carrying off the vapour arising within the vessel, to a condensor, or into a chimney, or away into the open air, at a distance from the workmen. A hole is likewise made in the top with a stopper, by which small quantities of the material can be occasionally withdrawn, by a ladle, for the purpose of ascertaining the progress of the operation within.

The pulverised ore having been thus operated upon for several hours, it is afterwards allowed to remain in the retort for two or three days, or under some circumstances for a longer time, occasionally stirring it up, and drawing off the acid. It is then removed and washed in water in order to discharge the acid; and when this is done and the material dried, a similar quantity of salt-petre is again mixed with it in the retort, and the operation performed in a fresh quantity of acid as before.

The material being a second time withdrawn from the retort, it is to be thoroughly washed in warm water, until every appearance of acid has become completely removed, after which, being dried, and then ground in water, in the way white lead is usually treated, the material becomes fit for use.

The patentee has proposed to employ sulphuric acid in the retort, but in the second operation he sometimes uses nitric acid, and under certain circumstances, other acids. He has described a particular formed vessel to be used as a retort, but has not exhibited any figure, as the vessel may be variously constructed, without deviating from the general principle. Steam, under great pressure, is proposed, and most approved as the heating material, but fire may be applied directly to the under part of the vessel, and effect the same object.

Thus a variety of changes may be made in the modes of conducting the operation, all of which come within the contemplation of the patentee, and are claimed by him under the present patent.

[*Inrolled January* 1827.]

To Peter Groves, *of Liverpool Street, in the City of London, Esq. for his Invention of certain Improvements in making Paint or Pigment, for preparing and combining a Substance or Material with Oil or Turpentine, or other Ingredients.*

[Sealed 14th July, 1826.]

The subject of this invention is the production of a pigment or opaque basis for paint, which is to be prepared from lead ore. This pigment may be produced in two ways; first, from the lead ore in its natural state; and secondly, from the slag or scoria of the ore, after being smelted.

In the first instance, the ore is to be pulverized, and treated in the way described in the preceeding specification, in combination with salt-petre and sulphuric-acid and may be more or less acted upon by the acid, according as its colours shall be required in approaching to whiteness.

It does not appear that the patentee intends in the present instance, to bring this material to the condition of pure white lead, but to produce a substance approximating to the character of white lead as respects its opacity, which is to form a pigment or basis of paint.

With this preparation of lead, the materials constituting colours are to be mixed. If the material of the colour is of such chemical character as will not be injured by the action of the acid, and of heat, then it may be mixed in the retort with the lead ore, and be ground, and otherwise prepared with the ore in the way above described; if the paint is of a character that will be injured by heat, it may be mixed with the lead ore, and the acid after it has been removed from the retort; or if it is subject to be effected by heat and acid, then it may be mixed with the pigment, after it his been thoroughly washed and dried as above directed.

In the second case, when the slag or scoria run from the lead ore in smelting is to be converted into a pigment, it is to be ground or pounded to powder, and then to be acted upon by acid in a retort, in the same way as the ore, but as the slag is much lighter than the ore, a greater quantity of acid will be necessary, though it need not be so strong; and that slag which is the least vitrified, is to be preferred.

This material, when prepared, may be mixed with paints of a dark colour, and will be found a very good pigment, considerably cheaper than white lead, and for browns, or blacks, and other dark colours, may in some cases be preferable.

[*Inrolled September,* 1827.]

To Edward Thomason, *of Birmingham, in the County of Warwick, Goldsmith and Silversmith, for his having found out or Invented Improvements in the Construction of Medals, Tokens, and Coins.*

[Sealed 9th November, 1826.]

The improvements proposed by the patentee, are the attachment of raised rims to medals, by means of solder, instead of producing the rims by the pressure of the dies as heretofore.

When the medals has been struck on both faces of a circular piece of plated metal or silver gilt, it is proposed to attach round the periphery, a rim of silver or gold. This rim may be prepared in a flat state by a roller pressing a strip of metal into a long straight matrix, for the purpose of giving it a milled, or otherwise ornamented edge; or of raising or sinking letters, so as to form an inscription or motto. The strip so prepared is then to be beat into a ring form, and attached to the outer edge of the medal by solder.

The faces of these medals or tokens are to be prepared in a coining or fly-press, precisely in the way commonly practised, the only feature of novelty being the attachment of the rim by solder, as above said.

[*Inrolled January,* 1827.]

Novel Inventions.

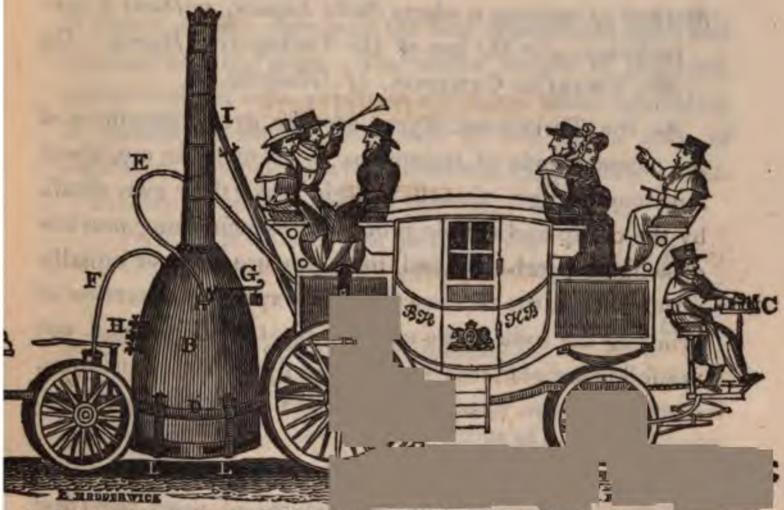
Burstall and Hill's Steam Carriage.

The patentees of the Edinburgh Steam Carriage, which has been mentioned several times in our preceeding volumes, have brought to London a working model of their invention, for the purpose of demonstrating the practicability of running a Steam Coach upon ordinary roads. This model, which contains several improvements upon the former patent, is made upon a scale of three inches to the foot of the intended stage coach, which is, they say, in considerable forwardness.

As we have not yet reported the Specification of the last improvements proposed in connection with this invention, we shall not at present enter into a particular description of the model, but merely say that in our opinion the arrangements of the machinery do the patentees great credit; the model is neat and performs extremely well.

It is, however, to be remembered, this is but a model, and though the practicability of constructing a Steam Coach, that should be capable of travelling upon ordinary roads, may be demonstrated, (which we have never doubted,) yet it is by no means proved how far a sufficient speed can be obtained, or what economy may be derived in working a full sized Stage Coach b steam, instead of horses.

We present our readers with the following rude sketch of the model, by way of giving a general idea of its construction; when we report the specification of the last improvements, we shall enter more fully into the details, and perhaps be enabled to say something practically of its operations.



A, Water Cistern.—B, the Boiler.—C, Steering Wheel, with the Conductor.—D, Steel Frame which carries the Boiler.—E, the Curved Steam Pipe to supply the Engines.—F, Hand Pump and Pipe to fill the Boiler.—G, Safety Valve.—H, Notice Cocks.—I, Eduction Pipe, to take the Steam from the Engine to Chimney.—K, the Crank.—L L, Pan for the Cinders.

The model is constructed on a scale of 3 inches to the foot, is 5 feet 6 inches long, 16 inches over the wheels, and 1 foot 10 inches high, the middle or propelling wheels being 13 inches in diameter.

"THE full size Carriage is intended to be about one foot longer than a two horse stage coach and horses. Seven feet four inches high to the roof, the wheels being the common breadth apart. It will be retarded or stopped in running down hill by a powerful lever and friction-break, which acts on the two fore wheels, within reach of the conductor ; at the same time, by a crank and rod, the throttle valve is closed, which shuts off the steam. The engineer behind can at pleasure stop the engine.

The machine, with all its wheels smooth, and without either propellers, or any other adhesion on the ground, except the natural friction of the iron against the road, carries with ease and rapidity, up an ascent of one in eighteen, a weight equal to Forty Passengers upon a common stage coach, demonstrating that, on *this plan,* Stage Coaches may be propelled with *safety, economy, and speed,* not to be attained with horse coaches, and capable of making the present common roads of the country fully as economical as rail-roads, except in situations of extraordinary traffic.

The boiler is so constructed as to be perfectly safe, and the most timid person may view the working of the model without either danger or annoyance."

Method of making a cheap Soda Liquor, without Crystallizing, for the use of the Turkey-red Dyers. By Mr. CHARLES CAMERON, *of Glasgow.*

As the Turkey-red dyers are the great consumers of the common soda of commerce, it occurred to me, about four months ago, that they might make their own alkali, by the cheap and simple process of decomposing muriate of soda by pearl-ash, and thus procure a liquor equally pure, without the tediousness and expensive operation of bringing the soda to the state of crystal. I pointed out the following plan to a Turkey-red dyer here, who immediately put it in practice, and it is now gradually adopting by the trade.

Into a cast-iron boiler capable of holding 450 gallons of water, I put ten hundred weight of pearl-ash (first sort), seven hundred weight muriate of soda, and four times the weight of the muriate of soda of water, applying heat, and stirring until both are dissolved. After boiling for some time, the muriate of potash begins to crystallize on the surface. As the boiling is still continued, the muriate of potash is rapidly forming, and is lifted out of the vessel by means of a ladle pierced with small holes, and is thrown into a vessel placed in an inclined position, with its end or side a little within the edge of the boiler, which allows any of the liquor that may have been carried over, to drain back again into the pot. The boiling is continued until nearly the whole of the muriate of potash is deposited and taken out. The liquid is then removed into another vessel, either of cast iron or wood lined with lead, and allowed to remain until it has cooled to the temperature of sixty degrees, during which time it parts with the rest of its muriate; it is then run off into another vessel, and diluted with water to twenty degrees specific gravity, more or less at pleasure, which prevents the soda from crystallizing, and gives an uniform strength of liquor, equally pure with the best crystallized soda, and at about half the price. The above weight of pearl-ash and muriate of soda, produces a mineral alkali equivalent in quantity to what is contained in one ton of soda of commerce, the best of which does not exceed 22 per cent.

Present price of soda, 22*l.* per ton.	£.	*s.*	*d.*
Price of pearl-ash, first sort, per ton	28	0	0
14 cwt. of muriate of soda, 30*s.* per ton	1	2	0
	29	2	0
These produce 1¼ tons of muriate of potash, price 5*l.* 10*s.*	6	17	6
Cost of alkali, equivalent to 2 tons of soda	22	4	6

The process is so simple, that one workman can decompose one or more tons per day, dependent on the size of his vessels. As the Turkey-red work consumes from forty to two hundred and fifty tons annually, according to the extent of its establishment, it is of great importance to that valuable manufacture. I can claim no merit in merely decomposing muriate of soda by potash, that is a fact long known; what properly belongs to me is, being the first to point out to the trade a simple and unexpensive method of making their own alkali, without being at the expense of erecting additional premises, and extensive apparatus, required for the purpose of crystallizing; a common boiler and two or three other vessels being all that is requisite.

Rolling Press for Bookbinders, by Mr. W. Burn, *of Kirby-street, Hatton-garden, London, from the Transactions of the Society of Arts.*

A committee met at Mr Burn's house, for the purpose of examining the rolling press employed by him as a substitute for the beating which books require previous to being bound. The press consists of two iron cylinders about a foot in diameter, adjustable in the usual way, by means of a screw, and put in motion by the power of one man, or of two, if more convenient, applied to one or two cranked handles. In front of the press sits a boy who gathers the sheets into packets, by placing two, three, or four upon a piece of tin plate of the same size, and covering them with another piece of tin plate, and thus proceeding by alternating tin plates and bundles of sheets till a sufficient quantity have been put together, which will depend on the stiffness and thickness of the paper. The packet is then passed between the rollers and received by the man who turns the winch, and who has time to lay the sheets on one side, and to hand over the tin plates by the time that the boy has prepared a second packet. Among other books that were pressed in presence of the committee was a minion bible, which was passed through the press in one minute, whereas the time necessary to beat the same would have been twenty minutes. It is not, however, merely a saving of time that is gained by the use of the rolling press, the paper is made smoother than it would have been by beating, and the compression is so much gretaer, that a rolled book will be reduced to about five-sixths of the thickness of the same book if beaten. A shelf, therefore, that will hold fifty books bound in the usual manner would hold nearly sixty of such, if bound in Mr Burn's manner, a circumstance of no small importance, when it is considered how large a space even a moderate library occupies, and that book-cases are an expensive article of furniture.

Illuminated Clock Dials.

We are happy to observe that this very simple and ingenious mode of increasing the utility of turret clocks, is now becoming into very general use. Our readers will no doubt recollect, that the iron church at Glasgow, was first illuminated by means of a parabolic reflector; and since that, the metropolis has furnished three very successful instances of the employment of transmitted light for the same purpose. They are now enabled to add another large clock to the list, as the church clock of St. Mary, Islington, was illuminated on February 25, for the first time. The dial is the largest which we have yet seen, the diameter to the extremity measures nine feet, and the illuminated part eight feet; the length of the figures fifteen inches; the minute hand four feet, and the hour hand two feet nine inches; the height of the dial from the ground is sixty-five feet. As the clock struck seven the gas was turned on, and the joy-bells rang a merry peel: the effect was very beautiful, and the crowds who had assembled before the church testified their approbation, by repeated cheers. The clock can be seen in both roads, and very distinctly from Cloudsley Terrace—a distance of about three quarters of a mile. Its utility is quite manifest, particularly to those who travel by night; and where it has been adopted upon the principles approved of by the Society of Arts, namely, in St. Giles's and Whitechapel, it has given great satisfaction. Each of the diameters of the dials in the two latter places, does not exceed six feet and a half, being less than the one in Islington by two feet and a half.

Lukens's Chronometer Springs.

Mr. Isaiah Lukens, of this city, has invented a mode of hardening the balance springs of chronometers, in a very superior and perfect manner. In the operation of hardening, by the improved process, the polished spring loses scarcely any of its brilliancy; the helical figure is perfectly preserved, and the grain of the steel is evidently less liable to injury than by the old method. The complete protection of the surface, is, indeed, an assurance that the interior is also preserved from deterioration.

The Editor has been confidentially made acquainted with the process followed by Mr. Lukens, and is not, therefore, at liberty to publish it. Several of the most eminent chronometer makers in England, have adopted it, and have cheerfully rewarded Mr. Lukens for his ingenious discovery, and others will undoubtedly avail themselves of its advantage.

Polytechnic and Scientific Intelligence.

London Institution.

The first *Soiree* or *Conversazione* was held in the above Institution on Wednesday, February 6, and was very numerously attended, there being upwards of 400 persons present. Tea and other refreshments were provided at an early hour, and the doors of the Library thrown open at seven o'clock, for the display of a large collection of novel inventions, and specimens of improvements in the arts and manufactures. Shortly after eight o'clock the company adjourned to the Theatre, when a lecture was delivered by Mr. Partington, an outline of which we shall present to our readers in our next number.

The *Soiree* held on the 20th, was more numerously attended than the preceding, a report of which will also accompany the above.

Novel Application of Hydrogen Gas from Salt Mines.

In the salt mine of Gottesgabe, at Rheine, in the county of Pecklenbourg, there has issued for sixty years from one of these pits, which has on this account been called "The Pit of the Winds," a continued current of inflammable gas. The same gas is produced in other parts of the mines. M. Roeders, the inspector of the salt mines, has used this gas for two years, not only as a light, but as fuel for all the purposes of cooking. He collects it in pits that are no longer worked, and conveys it in tubes to the house. It burns with a white and brilliant flame. Its density is about 0.66. It contains only traces of carbonic acid and sulphuretted hydrogen, and therefore should consist of carbonated hydrogen, and olefiant gas. We may observe that the village of Fredonia, on the shores of Lake Erie, is lighted every night by inflammable gas, from the burning springs, as they are called, in its vicinity.

Antediluvian Footsteps.

In the red sand stone-quarry of Corncodale Muir, about two miles to the north of the town of Lochmaben, in the county of Dumfries, are numerous and distinct impressions of feet, which leave no doubt that this rock, while in a soft state, had been traversed by living quadrupeds. Casts taken from some of these prints are in the possession of several geologists. The simple inspection of the tracks make it impossible to doubt in what manner they have been produced. The great numbers of the impressions in uninterrupted continuity—the regular alternations of the right and left footsteps—their equi-distance from each other—the outward direction of the toes—the grazing of the foot along the surface before it was firmly planted—the deeper impression made by the toe than by the heel, the forcing forward of the sandy matter of the rock, by the downward and scarcely slanting direction in which it is remarkable that all the animals have traversed this singular acclivity—and, in the largest speciment found in a different part of the quarry, the sharp and well-defined marks of the three claws of the animal's foot, are circumstances which immediately arrest the attention of the observer, and force him to acknowledge that they admit of only one explanation.

American Patents.

List of Patents granted in the United States, from September 14th to October 25th, 1826.

By the attention of S. A. Elliot, Esq. of the Patent office, we are enabled to complete our list of American Patents in those parts which were defective. The circumstances which have prevented their regular insertion were stated in page 179 of our present Volume.

In the printing press, called the New England printing press, Edward Cooper, Richmond, Virginia, Sept. 14th, 1826.

In the mode of sawing circular timber, or work for felloes of carriages, Benjamin Overman, Greensboro', North Carolina, Sept. 15th.

In the wheels for propelling steam boats, and for other uses, John James Giraud, Baltimore, Sept. 15th.

In rail-ways, called the portable endless rail-way, Jeremiah Price, New York, Sept. 15th.

In the machine for manufacturing wrought nails, spikes, &c. Joseph Krauser, Philadelphia, Sept. 23rd.

In the engine for throwing water for the extinguishment of fires, George Shalk and William Tintoff, Lebanon, Pa. Sept. 23rd.

In the wool-carding machine, James H. Arnold, Belmont, Ohio, Sept. 25th.

In the machine for raising earth, mud, &c. called the submarine excavator, Samuel Collins, New York, Sept. 26th.

In the mode of applying anthracite coal to the generating of steam, Daniel Collings and James D. Gallup, Wilkesbarre, Luzerne county, Pa. Oct. 12th.

In the grist mill, Moses Mendenhall, Greensboro', Guildford county, N. Carolina, Oct. 20th.

In Bells, Henry Tyler, Utica, New York, Oct. 20th.

In the method of drawing water from wells, patented by him on the 2nd day of Nov. 1823, Elijah Willard, Egremont, Mass. Oct. 23rd.

In making and constructing cellars, vaults, and magazines, in such manner as to prevent the tide or spring water from entering in anv way, Henry Hallack, New York, Oct. 24th.

In the manufacture of bridles, Daniel H. Read, New York, Oct. 24th.

In the machine for shelling corn, Elijah Russell, Greensboro', N. Carolina, Oct. 24th.

In the horse saw mill, Solomon R. Johnson, New York, Oct 25.

In the method of discharging cannon and ship-guns, Henry Whitcomb, Adams, Jefferson county, New York, Oct. 25th.

In the bark mill, Cotton Foss, Madison, Ohio, Oct. 25th.

New Patents Sealed in 1828.

To John Weiss, Strand, surgical instrument maker, for improvements on instruments for bleeding horses, and other animals—Sealed 26th January—6 months.

To Augustus Applegath, Crayford, Kent, printer, for improvements in block printing — 26th January—4 months.

To Donald Currie, Regent-street, St. James's, Middlesex, for his method of preserving grain, and other vegetable and animal substances, and liquids—31st January—6 months.

To William Nairn, Dane-street, Edinburgh, Midlothian, mason, for his improved method or methods of propelling vessels through or on the water, by the aid of steam, or other mechanical force—5th February—6 months,

GENERAL METEOROLOGICAL TABLE FOR 1827.

MONTH.	THERMOMETER.			BAROMETER.			RAIN.	WINDS.								RANGE.	
	High	Low	Mean.	High.	Lowt.	Mean.	Inches.	N.	S.	E.	W.	N.E.	S.E.	N W	W	Ther	Bar.
JANUARY	52	8	33·88	30·16	28·92	29·7280	,3	3	2		1	6		5	14	44	1,24
FEBRUARY	56	10,5	32·41	30·40	29·39	29·9079	,225	2	1½	1		15½		2½	5½	45·5	1,01
MARCH	61	24	43·63	30·18	28·70	29·5932	2,625	2	2			1		3½	22½	37	1,48
APRIL	77	24	48·60	30·19	29 44	29·8644	,85	2½	2½	2½	4	2½	30	5	7½	53	,75
MAY............	76	31	54.84	30·03	29·10	29·6865	1,975	3½		1½	1	6½	1½	3	15	45	,93
JUNE	79	34	59·67	33·19	29·50	29·8377	1,	4	½	1	2½	4½	1	3	13½	45	,69
JULY	83	40	64·78	30·30	29·64	29·9836	1,3515		1½	1	3	2	5	5	13½	43	,66
AUGUST	80	38	60·44	30·25	29·30	29·9033	1·5	6		1	1	7	1½	6	8½	42	,95
SEPTEMBER	70	33	57·74	30·24	29·40	29·8883	3·225	8	2	2	1½	2	4	2	8½	37	,84
OCTOBER	65	30	51·82	30·30	29·05	29·6625	3·375	5½	4	1½		4	5	3	7½	35	2,25
NOVEMBER	63	19,5	42·57	30·32	29·34	29·8889	1·45	5		1	2		5	9	8	43·5	,98
DECEMBER	57	27	43·95	30·58	28·97	29·7836	4·325	1	2		4		2	4	18	30	1,61
YEAR	83	8	49·53	30·58	28·70	29·8107	22·2025	42½	18	12½	20	51	28½	50½	142	75	1,88

LOWER EDMONTON,

CHAS. H. ADAMS.

CELESTIAL PHENOMENA FOR MARCH, 1828.

D.	H.	M.	S.	
1	0	0	0	Clock before the ☉ 12' 35"
1	6	53	0	Ecliptic opposition, or ● Full Moon.
2	5	0	0	☾ in conj. with υ in Leo.
2	19	0	0	♀ in conj. with ♄ in Pisces.
5	11	0	0	☾ in conj. with γ in Virgo.
5	0	0	0	Clock before ☉ 11' 42"
5	13	42	50	♃'s 1st Satt. will immerge.
6	1	0	0	☾ in conj. with 2 α in Libra.
6	5	0	0	☾ in conj. with ♃ long. 14' in Libra. ☾ lat. 1° 38' N. ♃'s lat. 1° 19' N. diff. lat. 19
6	20	0	0	☾ in conj. with 4 ♄ in Libra
7	5	0	0	☾ in conj. with ϑ in Libra.
8	0	0	0	☿ Stationary.
8	17	18	0	☾ in □ last quarter.
10	0	0	0	Clock before the ☉ 10' 28"
11	17	0	0	☾ in conj with β in Capri.
12	15	36	24	♃'s 1st Satt. will immerge.
14	0	0	0	ζ Stationary.
14	8	0	0	♂ in conj. with β in Oph.
5	0	0	0	Clock before the ☉ 9' 5"
15	9	38	0	Ecliptic conj. or ● New Moon.
16	19	0	0	☽ in conj with ε in Pisces.
17	0	0	0	☽ in conj. with ζ in Pisces.,
20	0	0	0	Clock before the ☉ 7'. 36"
20	2	47	0	☉ enters Aries.
20	14	0	0	☽ in conj. with 1δ in Taurus
20	15	0	0	☽ in conj. with 2δ in Taurus
20	17	0	0	☽ in conj. with ε in Taurus
21	11	58	25	♃'s 1st. Satt. will immerge
22	22	2	0	☽ in □ first quarter.
25	0	0	0	Clock before the ☉ 6' 4'
26	2	0	0	☽ in conj. with 1 α in Cancer
26	4	0	0	☽ in conj. with 2 α in Cancer
27	1	0	0	☽ in conj. with • in Leo.
27	11	0	0	☽ in conj. with π in Leo.
28	19	0	0	♀ in conj. with δ in Aries.
29	12	0	0	☽ in conj. with υ in Leo.
30	0	0	0	Clock before the ☉ 4' 31"
30	22	18	0	Ecliptic opposition or ● Full Moon.
31	0	0	0	☿ Stationary.

The waxing moon ☽—the waning moon ☾.

Rotherhithe. J. LEWTHWAITE

METEOROLOGICAL JOURNAL, FOR JANUARY, AND FEBRUARY, 1827.

1827.	Thermo.		Barometer.		Rain in inches.	1828.	Thermo.		Barometer.		Rain in inches.
	Hig.	Low.	High.	Low.			Hig.	Low.	High.	Low	
JAN.						FEB.					
26	47	37	30,25	30,11	,05	11	37	29	29,70	29,49	
27	53	40	30,33	30,25		12	32	27	29,96	29,88	
28	41	30	30,33	30,32	,0 25	13	34	27	30,02	stat.	
29	44	33	30,15	30,12		14	36	27	29,73	29,44	
30	45	30	30,05	29.98		15	38	25	29,72	29,56	
31	50	29	29,95	29.91	,05	16	40	26	29,80	29,76	
FEB.						17	38	24	29,71	29,63	
1	50	39	30,02	29 86	,225	18	39	20	29,40	29,28	
2	43	40	30,07	30,06		19	44	30	29,28	29,26	,95
3	49	35	30,37	30 30		20	38	31	29,30	29,16	
4	47	33	30,19	stat.		21	48	36	29,04	28,96	,025
5	52	44	30,12	30,06		22	47	35	29,10	28,94	,1
6	51	44	30,02	29,96	,075	23	43	37	29,46	29,24	,025
7	49	42	29,92	29,82		24	48	33	29,76	29,66	
8	48	33	29,82	29,70	,125	25	53	45	29,86	29,76	
9	40	35	29,68	29,60	,05						
10	36	32	29,70	29,59	,1						

LOWER EDMONTON. CHARLES H. ADAMS

LITERARY AND SCIENTIFIC NOTICES.

Senegal.—The Geographical Society are in anxious expectation of receiving some important particulars, respecting the Upper Senegal, from M. Prosper Gerardin, who lately returned to Africa. M. Muller, who resided for a considerable time in Egypt, and who accompanied M. Pacho in his Travels in Cyrenaica, is also gone to Senegal, to act in joint capacities of secretary and interpreter.

A new comparative Atlas of ancient and modern Geography, to be drawn from the best known authorities, on a new plan, accompanied by a set of skeleton maps, is announced by Mr. Arrowsmith as in a state of forwardness.

The first number of Mr. J. G. Jackson's Series of Designs for Villas, on a moderate scale of expense, adapted to the vicinity of the metropolis or large towns, has been published. This part represents elevations and perspective designs, some of which are in great taste, and exhibit some pretty specimens. The work will be completed in about six numbers.

In the press.—Letters from the Continent; written during a residence of eighteen months, in 1826 and 7; containing sketches of foreign scenery and manners; with hints as to the modes of travelling, and expense of living, by the Rev. Weever Walter, M. A. The work is to form 1 Vol. 8vo.

Messrs. George and Edward William Cooke are engaged on a series of forty-eight plates of shipping and craft, from original drawings. The work is to be executed in the same style as London and its vicinity.

French Expedition. Accounts have been recently received from the French expedition, under the command of Capt. Durville, dated at Tongatabou, one of the Friendly Islands, by which it appears that the Astrolabe has been nearly wrecked by violent tempests that drove her on the rocks. She was eventually got off, in such a shattered condition, having suffered the loss of most of her anchors and cables, that great apprehensions are entertained that she will not be able to weather the Pacific Ocean.

An engraved elevation of the north side of the cathedral church of St. Pauls is about to be published, by subscription, by Mr. G. Gladwin, who has himself measured, drawn and engraved the whole of this magnificent structure, in a striking and correct manner The size of the engraving is about that of an imperial sheet.

Native Platina.— Before Humboldt's return from America, small grains only of platina were known to naturalists. On his arrival in Prussia, he deposited in the Berlin Museum, a native specimen of Peruvian platina, weighing 1088 grains. For twenty years this remained the largest specimen in Europe. Since 1822, the Museum of Madrid has been enriched with another American mass of platina, weighing 11,641 grains. A few months ago, a still more remarkable mass was discovered in the Urals, weighing 10 fifty-four ninety-ninths Russian pounds. It is deposited in the Museum of St. Petersburgh. The relative weights of the platina of Berlin, Madrid, and Petersburgh are 1, 11, 75.

A small treatise has just been published, by Capt. J. Crisp, of the Madras army, on the method of determining terrestrial longitude, by the moon's right ascension as deduced from her altitudes and culminations. The author describes the modes in ordinary practice of ascertaining the longitude, the difficulties and objections which each method is subject to, proposing, in preference, the mode above stated, which he has described and illustrated by many examples, and added some useful tables of proportional logarithms.

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